Medical Library JUL 2 0 1945

BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY JUNE 30 1945

TABLE OF CONTENTS

Penicillin Therapy in Acute Bacterial Endocarditis
A. DOLPHIN, M.D., and R. CRUICKSHANK, M.D. 897

Staphylococcus pyogenes Septicaemia Treated with Penicillin
LEONARD HOWELLS, M.D., R. R. HUGHES, M.D., and R. RANKIN, M.B. 901

Local Penicillin for Ophthalmia Neonatorum ARNOLD SORSBY, F.R.C.S. 903

Penicillin for Hand Infections G. J. GROSSMARK, M.R.C.S., and L. W. PLEWES, F.R.C.S.Ed. 906

Intratracheal Penicillin for Infected Bronchiectasis H. B. MAY, M.D., and M. A. FLOYER, M.B. 907

Effort Syndrome in West African Soldiers D. L. H. GODDARD, M.D. 908

MEDICAL MEMORANDA

Confluent Smallpox Treated with Penicillin. M. A. FOULIS, M.D. 910
Empyema complicating a Pneumothorax Treated with Penicillin. L. A. QUIRK, M.D. 911
Volvulus of Caecum with Reversed Rotation of Mid-gut. N. A. GODFREY, F.R.C.S. 911

GENERAL ARTICLES AND NEWS

Nova et Vetera 921
A Metal Suprapubic Plate. W. PEARCE, M.R.C.S. 912
CARE OF THE WOUNDED 917
TUBERCULOSIS EDUCATIONAL INSTITUTE 917
HEALTH AND SANITATION IN RANGOON 917
NUTRITIONAL LOSS IN FOOD PREPARATION 917
THE SERVICES 929
UNIVERSITIES AND COLLEGES 928
MEDICAL NOTES IN PARLIAMENT 929
MEDICAL NEWS 932

REVIEWS

A Revolutionary Scheme of Local Government 911
Endocrinology of Reproduction 912
Aerosols 912
Notes on Books 912

REPORTS OF SOCIETIES

WEST LONDON MEDICO-CHIRURGICAL SOCIETY: The Art of Command 918
NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY 918
ROYAL SOCIETY OF MEDICINE: Exophthalmos and Endocrine Disturbance 920

LEADING ARTICLES

Progress in the Psychiatry of War 913
Chemical Disinfection of the Air 914

ANNOTATIONS

X Rays in Intestinal Obstruction 915
Pharmacology of Patulin 915
Czechoslovakia after Liberation 916
Suspected Pneumokoniosis of Graphite Workers 916

LETTERS AND ANSWERS

D.D.T. for Bees, Wasps, and Hornets—Types of Syringe Needle—One Underdeveloped Breast — Seborrhoea Capitis —Sonne Dysentery Carriers—Tenacious Plugs in Lungs in Asthma—Herpes Labialis—Post-menopausal Pregnancies — Diabetic Gangrene — Dystrophia Adiposo-genitalis — Relief of Tinnitus —Fly Repellents—? Neurosyphilis—Income Tax—National First-aid Service —Calciferol and Toxisterol — Corrections 932-4

CORRESPONDENCE

Bridging the Gap. W. H. NEWTON, M.D. 921
Gifts from American Medical Women. Dame JANET CAMPBELL, M.D. 922
Rheumatism and Orthopaedics. A. G. TIMBRELL FISHER, F.R.C.S. 922

SUPPLEMENT

Medical Candidates for Parliament ... *129*
Heard at Headquarters *130*
HEALTH POLICY OF LABOUR AND LIBERAL PARTIES *130*
CORRESPONDENCE *131*
H.M. FORCES APPOINTMENTS *132*
ASSOCIATION NOTICES *132*

CORRESPONDENCE—*contd.*

Edinburgh Outbreak of Smallpox, 1942. A. L. FERGUSON, M.B. 923
Prophylactic Vaccine for Typhus. JOSEPH FAHY, M.B. 923
Attenuation of Measles. A. H. MORLEY, M.B. 923
Artificial Respiration in the Newborn. J. POOLE, M.B. 924
Painless Childbirth. R. C. BROWN, F.R.C.S., and E. R. REES, M.D. 924
Women in Labour. SIDNEY WRAY, L.M.S.S.A.; ERIC COLDREY, F.R.C.S.; GWENDOLINE ROWNTREE 924
Caudal Analgesia. T. B. FITZGERALD, F.R.C.S.Ed. 925
Obstetric "Specialism." L. W. HEFFERMAN, F.R.C.S. 925
Sex Dispersion of Intelligence. MORRIS CUTNER, M.R.C.S. 925
Electro-convulsive Therapy Apparatus. D. P. MEDHURST 926
Aborting the Common Cold. J. H. DOUGLAS WEBSTER, M.D.; B. BANETH, M.D. 926
Intestinal Obstruction due to Dried Fruit. J. L. COLES, M.B., and A. BECK, L.R.C.S. 926
Belsen Camp. F. R. WALDRON, M.D. 927
Alien Doctors. W. A. O'CONNOR, L.M.S.S.A. 927
Oxford and Cambridge University Elections. W. W. GRAVE, M.A. 927

OBITUARY

N. Bishop Harman, F.R.C.S. 927
R. S. Lawson, F.R.C.S. 927
Claude Douglas, F.R.C.S. 928
C. V. Dingle, M.D., D.P.H. 928
Thomas Fernandez, M.R.C.S. 928
Roger Bullock, M.R.C.S. 928

Epidemiology Section 931

BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.1

No. 4408, WEEKLY, PRICE 1/6

Copyright
REGISTERED AS A NEWSPAPER

THE THERAPY OF ASTHMA

The treatment of asthma resolves itself into a consideration of underlying factors and causes. Often in ASTHMA *the underlying cause* is not discoverable or changes from time to time—now irritant dusts, now bacterial infection, etc. *The underlying factor* is fortunately always the same—bronchospasm.

Thus sometimes causative agents can be removed or mitigated but always the underlying factor—bronchospasm—can be treated, successfully, with FELSOL.

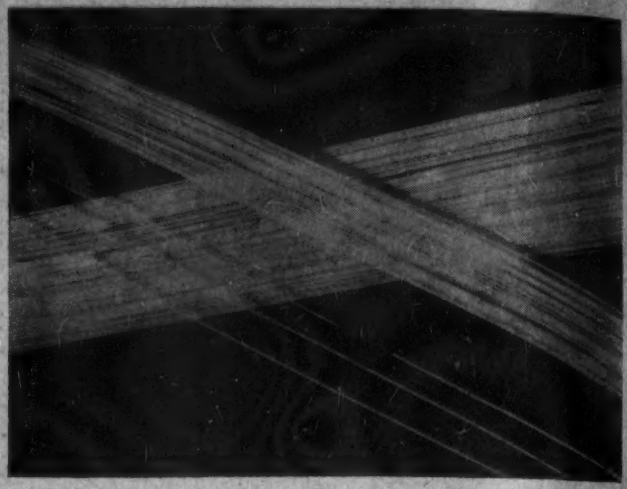
Most cases of Asthma are chronic and demand patience in treatment—persistence with FELSOL will yield the highest possible percentage of successes.

NO MORPHIA . . . . NO NARCOTICS

Phenazone 0.47 *Iodopyrine* 0.03
Antipyrine Aceto-salic, las 0.40
Caffeine 0.10
Ext. Viscum Album 0.01
Ext. Brachycladii 0.01
Physicians' samples and literature willingly sent on request

Felsol REGD. POWDERS for ASTHMA

British Felsol Company Ltd., 206/212 St. John St., London, E.C.1
Telephone: Clerkenwell 5063 Telegrams: Felsol, Smith, London



Nylon monofilament sutures are consistent . . . from the smallest to the largest diameter. You can be sure that each succeeding suture will be an exact counterpart of the first, both in quality and performance. Strong, smooth and supple, they remain unaffected by water or steam at the temperatures normally used for sterilising. A pattern card can be obtained from your usual Medical Supply House, on request.

ICI

IMPERIAL CHEMICAL INDUSTRIES LTD., LONDON, S.W.1
P.N.22

SALT'S STILL SUPPLY

For the information of the Medical Profession in these uncertain times, SALT'S wish to announce that, notwithstanding the present difficulties, they still continue to make and supply . . .

SURGICAL BELTS to individual measurements for Board of Trade Approved list of conditions.

ELASTIC HOSIERY in all Thread Elastic qualities (Silk not now being available).

TRUSSES for all types of hernia, to individual requirements.

ALSO ARTIFICIAL LIMBS AND SURGICAL APPLIANCES

Appointments at London Address: 1, STANLEY HOUSE, 103, Marylebone High Street, LONDON, W.1.
Tel.: Welbeck 3034

Guarantee

SALT & SON LTD · BIRMINGHAM 2

STAPHYLOCOCCI

PENICILLIN and other ANTISEPTICS

The miracle of Penicillin as a means of saving life and combating those Staphylococcal Infections previously so resistant as to be generally fatal, serves to focus attention on the extreme importance of Staphylococci as infecting organisms—an importance which is daily becoming more widely recognised.

Penicillin is not generally available and it is important that other agents highly lethal to Staphylococci should not be overlooked. It is not suggested that these other agents can replace Penicillin in every case for there are conditions for which Penicillin is unique. There are, however, many instances in which other agents than Penicillin can be employed for the destruction of Staphylococci either therapeutically or as a prophylactic. Such an agent is O-SYL.

O-SYL, unlike many other antiseptic substances, has a lethal action against Staphylococci identical with that for Streptococci. O-SYL is, therefore, par excellence, the antiseptic to remember where staphylococcal infections are in question.

Previous announcements have dealt with the several aspects of Staphylococcal Infections less generally recognised by Practising Physicians than by Research Workers. Reprints of such announcements dealing with:—

Staphylococcal Infections of the New Born

Staphylococcal origin of Impetigo

Staphylococcal Food Poisoning

are available on request for members of the Medical Profession.

Proof that O-SYL is non-selective as well as being very highly potent against Staphylococci *and* Streptococci is found in the following figures:

Index of Phenol Co-Efficient*	
against Staph. aureus	3.0
,, Haem. Strepts.	3.1
,, B. typhosum	3.7

*Note: Index determined under Rideal-Walker conditions.

O-syl should always be used as directed

A PRODUCT OF LYSOL LTD., HAYNES PARK, LONDON, S.W.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 30 1945

PENICILLIN THERAPY IN ACUTE BACTERIAL ENDOCARDITIS

BY

A. DOLPHIN, M.D., D.P.H., B.Sc.
Senior Medical Officer

AND

R. CRUICKSHANK, M.D., M.R.C.P.
Pathologist

(From the L.C.C. North-Western Hospital and Group Laboratory, Hampstead)

Disease of the heart valves caused by bacteria which can be recovered from the peripheral blood is generally divided into acute or ulcerative and subacute endocarditis. Acute bacterial endocarditis is usually caused by pyogenic cocci—haemolytic streptococcus, *Staphylococcus aureus*, and the pneumococcus. *Streptococcus viridans* is the causal organism in most cases of subacute bacterial endocarditis, but other non-haemolytic streptococci, *H. influenzae*, diphtheroid organisms, etc., may be concerned. The illness in the first group usually has the features of a septicaemia, with the endocarditis developing during the course of a generalized infection, and it terminates fatally within a few days or weeks. In subacute bacterial endocarditis, which usually has an insidious onset, the illness is characterized by low-grade fever, embolic manifestations, and progressive anaemia, and it runs a course of many weeks or months before death occurs. The results of sulphonamide therapy in both kinds of the disease have been disappointing. Penicillin is now on trial, and this paper reports the good effect of the drug on six patients who had the acute form of the illness. In most cases clear-cut evidence of endocarditis developed after treatment with penicillin had been started for a septicaemia that had not responded to sulphonamides. Before describing our own cases we propose to give a brief review of earlier reports on the treatment of acute and subacute bacterial endocarditis with sulphonamides and penicillin.

Sulphonamide Therapy

Reports have appeared of cure of *Str. viridans* endocarditis by sulphonamides, but Willius (1942) has stated that careful analysis of the data presented about many of the cases casts justifiable suspicion on the diagnosis. Thus the presence of fever, a cardiac murmur, and a positive blood culture have often been the grounds for the diagnosis of bacterial endocarditis, although other essential signs, such as emboli, splenomegaly, anaemia, and progressive wasting, have been lacking. In many cases the follow-up period has been too short to justify the claims of cure, and, unfortunately, authors have subsequently failed to correct premature conclusions. Katz and Elek (1944) from their own experience and the reports of others concluded that sulphonamides, combined with heparin, were ineffective in the treatment of *Str. viridans* endocarditis.

In acute endocarditis a study of the reported cases does not suggest that sulphonamide therapy has been effective. The English literature of the past ten years records 14 cases of acute endocarditis due to haemolytic streptococci other than Lancefield Group A (9 Group B, 1 Group C, and 4 Group G); in spite of sulphonamide therapy, given in massive doses in 8 cases, all the patients died. Colebrook and Purdie (1937) in a series of streptococcal puerperal infections encountered one case of Group B endocarditis and 2 cases of Group B septicaemia; all three patients died. According to Fry (1938) Group B streptococcal septicaemia complicating post-abortum and post-partum puerperal sepsis is particularly apt to lead to endocarditis. He reported 2 fatal cases of Group B streptococcus endocarditis which occurred in the puerperium. MacDonald (1939) reported 2 fatal cases of Group G streptococcus endocarditis. Hill and Butler (1940) in a series of 12 Group B streptococcus puerperal infections had 2 patients with bacterial endocarditis, both of whom died in spite of sulphonamide therapy. Rosenthal and Stone (1940) gave an account of 2 fatal cases of haemolytic streptococcal endocarditis—one due to Group C and the other to Group B. The Group C infection was treated with 79 g. and the Group B with 162 g. of sulphanilamide without obvious effect. Koletsky (1941) reported a case of Group B streptococcal puerperal endocarditis in which treatment with sulphonamides and numerous blood transfusions failed; death occurred three weeks after delivery. Ramsay and Gillespie (1941), in a series of 16 Group B streptococcal puerperal infections, described 2 patients who had septicaemia and bacterial endocarditis; both died in spite of massive sulphonamide therapy. Among 12 Group G cases there was one patient whose blood culture was positive and who died from bacterial endocarditis although treated with massive doses of sulphonamides. Kehr and Adelman (1942) unsuccessfully treated with 38 g. of sulphanilamide a Group A streptococcal endocarditis in a child aged 2. The drug had no effect on the course of the disease. Keith and Heilman (1943) reported a case of Group G streptococcal endocarditis in a girl aged 8 years with congenital heart disease. During three months in hospital, while on doses of sulphonamide sufficient to give a blood concentration of 14 mg. per 100 c.cm., cultures of her blood remained persistently positive. Cunliffe, Gillam, and Williams (1943) reported a fatal case of endocarditis due to *Staph. albus* (coagulase-positive). Sulphapyridine produced a fall in temperature but no clinical improvement.

The outstanding features in this review of recorded cases are the frequency of Group B streptococcus as a cause of acute endocarditis and the failure of sulphonamide therapy in both the acute and the subacute forms of the disease.

Penicillin Therapy

Florey and Florey (1943) treated a case of *Str. viridans* endocarditis with 4,760,000 units of penicillin over a period of 30 days. The patient appeared much improved at the end of treatment; but cultures of the blood three weeks later were positive, and after a further three weeks death ensued. Keefer and his associates (1943) treated with penicillin 17 patients who had subacute bacterial endocarditis. Four of them died, 10 were unaffected by the treatment, and 3 improved temporarily. The total dosages of penicillin varied from 240,000 to 1,760,000 units, given for periods ranging from 9 to 26 days. Better results were claimed by Loewe and his colleagues (1944), who used penicillin and heparin (given subcutaneously) in the treatment of 5 patients with subacute bacterial endocarditis; the patients were all well and their blood was still sterile several months after treatment ceased. A clinical trial on a larger scale has lately been reported by Dawson and Hunter (1945); 15 of the 20 treated patients with subacute bacterial endocarditis have been apparently cured of their infection by penicillin, with or without heparin: 12 of them have been in good health for periods of 5 to 22 months. These workers recommend a daily dosage of 200,000 units of penicillin for three weeks as the minimum standard treatment in subacute bacterial endocarditis.

There have been few reports of the effect of penicillin in acute bacterial endocarditis. Keefer and his colleagues (1943) treated 91 patients who had *Staph. aureus* bacteriaemia (quantitative

blood cultures were apparently not done); of 34 fatal cases 9 had bacterial endocarditis, and none of them showed improvement during treatment. None of the recovered patients had bacterial endocarditis and no patient developed bacterial endocarditis after penicillin treatment had begun. Of 6 patients with primary pneumococcal endocarditis who were treated with penicillin 5 died and 1 recovered. Loewe *et al.* (1944) reported cures in one case of haemolytic streptococcus (group not stated) endocarditis and one case of pneumococcal endocarditis. Blood culture of the patient with haemolytic streptococcal endocarditis showed 130 organisms per plate (presumably per c.cm.) immediately before penicillin treatment was begun: 100,000 units of penicillin were given daily for 13 days. There was a dramatic response to the drug, but towards the end of the second week pulmonary oedema developed and digitalization was necessary. The patient with pneumococcal (Type 27) endocarditis was a girl aged 7½ years with congenital heart disease. She failed to respond to massive doses of sulphadiazine (blood concentration 74 mg. per 100 c.cm.), and repeated blood cultures were positive. During penicillin therapy numerous pulmonary infarcts developed, but she recovered sufficiently to return to school.

Thus the results of penicillin therapy in both acute and subacute bacterial endocarditis are encouraging enough to warrant further trial in these usually fatal infections. Penicillin has not hitherto been available for the treatment of subacute bacterial endocarditis in this country, but a co-operative trial is now being sponsored by the M.R.C. Penicillin Clinical Trials Committee (Christie, 1945).

Original Records

Six cases of acute bacterial endocarditis were treated in the puerperal sepsis unit at the North-Western Hospital and are a consecutive unselected series. Three of the infections were due to haemolytic streptococcus Group B, one was due to haemolytic streptococcus Group A, and two were due to *Staph. aureus*.

Case I

A multipara, aged 31, with no illness of note in the past history. Her present illness began after an abortion of three months' gestation, and when admitted to the unit she had been ill for one week, during which she had shivering attacks. Her general condition was good and she did not appear ill. The temperature was 99° F., pulse rate 80, and B.P. 110/70. The heart was normal except for a slightly "snappy" first sound at the apex, the lungs and C.N.S. were normal, and there were no local signs of genital tract sepsis. Cultures from the cervix and blood were sterile, the urine was normal, and a blood count showed R.B.C. 4,900,000, Hb 90%, and W.B.C. 12,000.

Five days later the temperature rose to 104° and blood culture showed haemolytic streptococcus Group B (3 organisms per c.cm.). Sulphanilamide was given (blood concentration, 9 mg. per 100 c.cm.), but after three days the drug was discontinued because of vomiting; sulphamezathine was substituted, 6 g. daily for six days. The temperature was normal during sulphonamide therapy except for a moderate rise on three occasions, but the pulse rate remained about 120. An apical systolic murmur appeared; at first faint, after a few days it became loud, rough, maximal at the apex, well conducted into the left axilla, and accompanied by a thrill. At the same time Osler's nodes appeared on the fingers, and the patient complained of pain like a "bruised" feeling in the left leg and foot. On examination the toes and distal half of the foot were deathly pale, and no pulsation could be felt in the left femoral, popliteal, and dorsalis pedis arteries. There was no splenomegaly, petechiae, or haematuria, the W.B.C. was 22,000, and quantitative blood culture showed 170 organisms per c.cm. The temperature was 99° F., but 24 hours later it rose to 101°. The patient was seen by Dr. Terence East, who confirmed the diagnosis of bacterial endocarditis. Penicillin treatment was begun. Except for the first three days, when an intravenous drip was used, the penicillin was given by intramuscular drip, using Eudrip No. 2 apparatus. Treatment was continued for 15 days. During the first seven days of therapy 100,000 units of penicillin were given daily (maximum blood penicillin level, 1:4), but as two blood cultures were positive during this period dosage was increased to 200,000 units daily for the remainder of the treatment, during which time blood cultures proved sterile. The total penicillin given was 2,300,000 units.

Twenty-four hours after treatment was begun the temperature fell to 98° F., and it remained normal afterwards except for an occasional rise to 99° during penicillin therapy. The general condition continued to improve; 12 negative blood cultures were obtained during the two months after treatment, and when the patient was discharged from hospital the sedimentation rate and W.B.C. had been normal for six weeks. There was a loud rough apical systolic murmur, accompanied by a thrill; radiographs of the heart were normal, the patient felt in excellent health, and the left leg showed no disability, although there was diminished pulsation in the left femoral artery.

Case II

A multipara, aged 42, with an old history of mitral stenosis. She developed puerperal sepsis after an abortion, and received 30 g. of sulphanilamide before her admission to the unit on the fourth day of pyrexia. She appeared ill, with temperature 100° F., B.P. 100/50, and had compensated mitral stenosis. There were no petechiae or Osler's nodes, no local signs of genital tract sepsis, and the abdomen, lungs, and C.N.S. were normal. A blood count showed R.B.C. 2,500,000, Hb 46%, and W.B.C. 7,000. Lancefield Group B streptococcus was cultured from the cervix and quantitative blood culture showed 35 haemolytic streptococci per c.cm.

Sulphamezathine, 6 g. daily, was given for five days, but the patient's general condition deteriorated; she sweated profusely, had remittent fever up to 105° F., and the pulse rate averaged 140. Quantitative blood culture showed 127 organisms per c.cm. immediately before penicillin treatment was started on the ninth day of disease. Treatment continued for 11 days. During the first six days the drug was given by intramuscular drip, 100,000 units daily (blood penicillin level, 1:4), and afterwards by 6-hourly intramuscular injections of 15,000 units. The total penicillin given was 960,000 units.

Twelve hours after penicillin treatment started the temperature fell from 105° F. to 97°, remained normal for two days, and then rose to 102°, after which it fell by lysis. The general condition improved, but on the third day of treatment a few petechiae appeared on the neck. Next day there was numbness and pain of sudden onset in the right foot; the toes and distal part of the foot became deathly pale, and no pulsation could be felt in the right popliteal and dorsalis pedis arteries. Gangrene did not develop, although pulsation could not be felt in the vessels for about six weeks. Since the patient's heart had not been fibrillating or in flutter it was considered improbable that the arterial obstruction was due to a thrombus arising in the left auricle. Five negative blood cultures were obtained during penicillin therapy and four negative blood cultures during the next two months. Five days after the penicillin was discontinued an intensely itchy generalized urticarial rash developed—probably an allergic reaction to the drug, since other possible causes were eliminated. The temperature and sedimentation rate have been normal for four months, but convalescence has been slow because of a considerable reduction in her cardiac reserve. This was due to recent myocardial and endocardial damage superimposed on old heart disease.

Case III

A primipara, aged 27. The duration of her illness was not exactly known, but apparently she was ill for two days before admission to the unit. Her general condition was then poor, she was drowsy and non-cooperative, the temperature was 101° F., and B.P. 110/70. There were no petechiae or Osler's nodes, and the lungs, abdomen, and C.N.S., apart from the drowsiness, were normal. A blood count showed R.B.C. 3,500,000, Hb 64%, and W.B.C. 19,000. The uterus was slightly enlarged, but there were no definite signs of sepsis. Lancefield Group B streptococcus was cultured from the throat, cervix, and blood (quantitative blood culture showed 109 organisms per c.cm.). Sulphanilamide treatment was begun (blood concentration, 9.5 mg. of free drug per 100 c.cm.), but blood culture after two days' treatment showed 15 organisms per c.cm., and after a further two days, during which time the general condition of the patient deteriorated, it was decided to discontinue sulphanilamide and begin penicillin therapy. Except for a short initial period when an intravenous drip was used, the penicillin was given by 3-hourly intramuscular injections of 15,000 units. Treatment was continued for 10 days, and the total penicillin given was 1,157,000 units.

Osler's nodes appeared on the fingers on the same day as penicillin treatment began, and on the second day of treatment the patient had sudden pain and numbness in the left foot and leg; on examination the foot was deathly pale, and pulsation could not be felt in the left popliteal and left dorsalis pedis arteries. The temperature, except for an occasional fall to normal, remained about 100° F. until three days after penicillin treatment was stopped, when it remained about 99° F., probably owing to gangrene, which had developed in the left foot. Blood cultures performed on the second, fifth, and seventh days of treatment, and on the ninth day after treatment had ceased, were sterile.

At this stage the patient was transferred to St. Thomas's Hospital for surgical treatment of the gangrenous foot. The temperature was normal for the next three weeks, when suppuration developed in the left foot. The temperature rose to 104.4° F., the leucocyte count was 15,000, and a swab from the left foot gave a growth of *Staph. aureus* and *albus* and haemolytic streptococci (not grouped). Blood cultures were sterile. After a course of sulphathiazole the temperature was normal again in seven days. The patient had another

pyrexial bout four days later, probably associated with the septic foot. On the 41st day after transfer she had a mid-thigh amputation, developed signs of bronchopneumonia, and died five days after operation.

At necropsy the heart showed mitral stenosis and hypertrophy of the left ventricle. The mitral cusps were adherent to each other and a little thickened; there were a few warty vegetations along the line of closure. The spleen was much enlarged and showed a number of septic infarcts, containing many streptococci. The material was not cultured. There were numerous small old infarcts in the kidneys. The left femoral artery contained old thrombus at its proximal end. It may be concluded that this patient had an acute bacterial endocarditis which was apparently cured by penicillin therapy, and that she died of bronchopneumonia following a major operation.

Case IV

A primipara, aged 31, with an old history of mitral stenosis. She developed puerperal sepsis after full-term delivery and was admitted to the unit on the sixth day of illness. Her general condition was fairly good; temperature 103° F., pulse rate 136, and B.P. 110/60. The heart was not enlarged; there was an apical systolic murmur, but no presystolic murmur and no thrill. There were no local signs of genital tract sepsis, and the lungs and C.N.S. were normal. A blood count showed R.B.C. 3,650,000, Hb 38%, and W.B.C. 16,000. Cultures from the cervix and blood were sterile. The urine contained no pus or red cells, but culture revealed Group A haemolytic streptococcus. Sulphanilamide treatment was given for six days (total drug, 28 g.). On the fourth day of treatment the temperature fell to 97° F. in the morning, but rose to 100° in the evening, after which a remittent fever developed, sometimes reaching 103°. A second blood culture 10 days after admission showed Group A streptococcus, and a second course of chemotherapy with sulphapyridine was started. While the drug was being given the blood cultures remained positive, and quantitative blood culture at the end of the course of sulphapyridine showed 129 organisms per c.cm. The patient's general condition was then worse; there was an apical systolic murmur as before, but no diastolic murmurs, the pulse rate was 144, and petechiae were present on the neck and tender red areas on the fingers. The spleen was not enlarged, but haematuria appeared for the first time; Hb was 55% and the W.B.C. 30,000. Penicillin treatment was begun 13 days after obtaining the first positive blood culture. The drug was given at first by 3-hourly intramuscular injections of 15,000 units, but later the interval between doses was increased. Treatment was continued for 14 days, and the total dose of penicillin was 960,000 units.

Within 24 hours of beginning penicillin treatment there was considerable clinical improvement; repeated blood cultures proved sterile, the temperature fell from 104.6° F. to 100° and remained around this level until treatment ceased, when it fell to normal. The pulse rate fell more slowly, and four days after treatment was begun a diastolic murmur was heard at the aortic area and along the left sternal border. Progress was maintained, and when the patient left hospital three months later the sedimentation rate was normal, Hb was 88%, there was a slightly diminished cardiac reserve, systolic and diastolic murmurs were heard at the aortic and mitral areas, the B.P. was 130/60, and she had a collapsing pulse.

After she left hospital the patient was seen by Dr. Jenner Hoskin, who reported: "She now has aortic regurgitation and double mitral disease, which in my opinion is rheumatic in origin. In my opinion the heart has suffered materially from the recent illness, which has definitely aggravated the valvular damage."

Case V

A multipara, aged 29, with no illnesses of note in the past history. She was admitted to the unit two days after she had aborted. She was only slightly ill; temperature 99° F., heart normal except for tachycardia of 116, B.P. 130/80. Cervical swab culture showed *Staph. aureus*; blood culture was sterile. Within 24 hours of admission to hospital she had severe haemorrhage, and manual evacuation of the uterus was performed. During the next seven days she received 47 g. of sulphanilamide. Eleven days after operation the temperature rose to 104° and blood culture showed *Staph. aureus*. A second course of sulphonamides was begun, being continued for eight days (30 g. of sulphathiazole by intravenous drip and 42 g. orally; 28 g. of sulphapyridine orally); the maximum drug concentration attained in the blood was 3.7 mg. of sulphapyridine per 100 c.cm. The general condition deteriorated; four blood cultures taken during chemotherapy were positive, and quantitative cultures on the sixth, seventh, and eighth days of treatment showed respectively 75, 120, and 703 organisms per c.cm. Penicillin treatment was then begun. The clinical picture was that of severe septicaemia without evidence of endocarditis.

Penicillin was given by 3-hourly intramuscular injections of 15,000 units for five days, then 3-hourly intramuscular injections of 10,000 units for two days; total penicillin, 790,000 units. The general condition improved considerably with the treatment, and blood cultures were sterile; but three days after treatment was stopped a rigor occurred, quantitative blood culture showed 167 organisms per c.cm., heart failure with pulmonary oedema developed, and a loud harsh pulmonary systolic murmur was heard. A second course of penicillin was given; the total dose was 879,000 units, administered during nine days by intermittent intramuscular injection. The patient's general condition again improved considerably; blood cultures were sterile on four occasions, the cardiac failure became progressively less, but six different specimens of urine contained numerous red cells. Three days after the second course of penicillin had ended acute heart failure again developed, but it responded to oxygen and diuretics; there was no pyrexia during this attack, but the pulse rate remained about 120. Six days later the temperature rose to 103° and quantitative blood culture showed 186 organisms per c.cm. No extracardiac origin was found for the septicaemia; and endocarditis, although suspected as the most probable cause for the relapses and the haematuria, was not diagnosed definitely because of the absence of petechiae, splenomegaly, and cardiac murmurs other than the pulmonary systolic. A blood count showed R.B.C. 4,100,000, Hb 68%, and W.B.C. 15,000.

A third course of penicillin was given (375,000 units during eight days by intermittent intramuscular injections). Two days after this course was begun a soft, blowing diastolic murmur which followed immediately on the second sound was heard at the aortic area and along the left sternal border. The urine contained numerous red cells, and when cultured showed some *Staph. aureus*. Blood cultures during this third course of penicillin and all subsequent blood culture were sterile. The patient continued to improve, but her discharge from hospital was delayed by chronic cystitis. She left hospital fit and well five months after her third course of penicillin had finished. Her cardiac reserve was then normal, but the aortic diastolic murmur was still well marked.

The patient was seen at the hospital 12 months later; she has been fit and well meanwhile, and has become pregnant again. She still has a diastolic murmur at the cardiac base and along the left sternal border, but it is less loud than it was before. Her B.P. is 140/70, radiographs of the heart show no abnormality, and her Wassermann reaction is negative.

Case VI

This patient, a multipara aged 31, was admitted with post-abortum puerperal sepsis and *Staph. aureus* septicaemia. She had received 31 g. of sulphonamides (13 g. of sulphamezathine and 18 g. of sulphapyridine) before admission to the unit on the seventh day of disease. She was extremely ill; temperature 100.6°, pulse 128; she was cyanosed and dyspnoeic, and had some basal pulmonary rales. Auscultation revealed an apical rumbling diastolic and an apical systolic murmur. There were numerous petechiae, especially on the neck and arms, and the spleen was slightly enlarged. *Staph. aureus* was cultured from the cervix and blood; quantitative blood culture showed 3,800 organisms per c.cm. (a repeat culture 24 hours later showed 4,820 organisms per c.cm.). The urine contained numerous red cells and some pus cells, and culture revealed *Staph. aureus*. The Hb was 58% and W.B.C. 33,000.

Penicillin treatment was started on the ninth day of disease (second day after admission) and continued for 12 days; during the first three days 120,000 units were given daily by 3-hourly I.M. injections of 15,000 units; but as the drug was slowly excreted because of chronic nephritis (urea clearance test, 16% of normal) the intervals between doses were gradually lengthened, until finally 15,000 units were given once daily, because excretion of a dose of 15,000 units was not completed until 36 hours afterwards. Total penicillin, 646,000 units. Within 24 hours of starting treatment the patient's condition improved. The temperature fell from 103° F. to normal, and it remained normal for six days, but afterwards became intermittent, sometimes reaching 100°. Blood cultures taken during penicillin treatment were sterile, but the clinical improvement was not maintained. She developed uraemia on the fifth day of treatment and became progressively worse. Death from uraemia occurred on the 21st day of disease.

The report on the necropsy was as follows: "Tricuspid valve thickened. Mitral stenosis and recent small vegetations on the valve. Cloudy swelling of the liver. The spleen contained several large infarcts and some smaller ones, most of them septic (cultures from the infarcts gave growths of *B. proteus*; Gram-positive cocci were seen in the smears, but it was not possible to determine if they were *Staph. aureus* or not). Kidneys: chronic nephritis and small infarcts in the enlarged left kidney. The uterus was slightly enlarged and without apparent sepsis. The brain had a large subdural haemorrhage; no embolism, and the arteries were normal."

Laboratory Tests

The infecting organisms in all these cases were sensitive to penicillin by *in vitro* tests. Blood and urinary levels of penicillin were determined by the methods of Fleming (1944). Penicillinase was added to blood cultures in fluid media. Quantitative blood cultures were made repeatedly in all cases by adding 1 c.cm. of blood to a tube containing 10–12 c.cm. of melted

agar and pouring into a Petri dish at the bedside. We consider quantitative blood culture to be very valuable as a prognostic aid in both staphylococcal and streptococcal septicaemia, and records of cure of "septicaemia" without this check should be accepted with caution (see McLellan and Goldbloom, 1942). The presence or absence of inhibitory penicillin in the quantitative blood-culture plate was determined by streaking a culture of *Staph. aureus* on one corner of the plate before incubation.

Diagnosis of Acute Bacterial Endocarditis

Thayer (1931) wrote that in acute streptococcal and staphylococcal endocarditis the short duration of the illness and the intense septicaemia so dominate the picture that the clinical signs of petechiae, emboli, etc., associated with *Str. viridans* endocarditis uncommonly occur and the endocarditis is often indeterminable clinically. In his series petechiae and emboli occurred in only 25% of acute haemolytic streptococcal infections, and were unusual in *Staph. aureus* cases (13.8%) unless the disease was subacute, when emboli and nephritis were commonly seen after some weeks. In staphylococcal infections the spleen was generally not palpable (felt in only 12.5% of cases); suppurative arthritis occurred in 6% of cases, clubbed fingers were not observed, and red corpuscles were found in the urine only four times among 32 cases. Pericarditis was uncommon (11% of cases) in acute streptococcal endocarditis; it occurred in 13.3% of staphylococcal infections, in which it was always purulent. It was particularly noted that streptococci, both haemolytic and *viridans*, attacked the sites of congenital malformations or previously damaged valves; in his series there was evidence of pre-existing valve damage in 58% of acute streptococcal and in 71% of *Str. viridans* infections. *Staph. aureus* showed no predilection for diseased valves, and although it most commonly attacked the left side of the heart the tricuspid valve was often affected.

Until grouping of haemolytic streptococci was possible endocarditis caused by Lancefield B, C, and G organisms was not distinguishable from that caused by Group A strains, but recent reports on endocarditis caused by these organisms confirm our experience in the puerperal sepsis unit that petechiae and Osler's nodes occur infrequently in Group B and G endocarditis and that obstruction of large arteries, especially of the lower limbs, is commonly found in Group B infections. Thus, this phenomenon occurred in all three Group B cases in the present series, while of the nine Group B cases found in the literature one patient developed complete gangrene of one foot and partial gangrene of the other, one developed hemiplegia, and one developed obstruction of an iliac artery. The only Group C endocarditis (confirmed at necropsy) found in the literature developed obstruction of both iliac arteries due to an aortic embolism. The frequency of embolism in the large vessels in Group B endocarditis may be associated with the character of the vegetations. Fry, and also Ramsay and Gillespie, noted that in this condition the endocardial vegetations were large and friable, owing perhaps to the fact that Group B streptococci do not produce fibrinolysin as Group A strains do, so that the thrombus deposited on the damaged valve is not dissolved away. Massive vegetations have also been noted in Group C and G endocarditis, and occur, of course, in staphylococcal and pneumococcal endocarditis. However, in the latter infections the course of the disease is usually so acute that embolic signs may not have time to develop.

In the light of the recorded findings it may be profitable to recapitulate the criteria on which a diagnosis of acute bacterial endocarditis was made in our series of six cases. In the first three patients the repeated isolation of Group B streptococcus from the blood stream, associated with clinical evidence of a generalized infection and, with one exception, the absence of an extracardiac focus, would be strong presumptive evidence of endocarditis even before signs of valvular damage were apparent. Although a diagnosis of endocarditis was made in only one of the three cases before penicillin treatment was begun, all three developed unequivocal signs of endocardial involvement with embolic phenomena; in one the diagnosis was confirmed at necropsy. In only one of the three patients was there definite evidence of antecedent valvular damage (following acute rheumatic fever), so that Group B streptococci may attack healthy heart valves—a finding which accords with the experience of other workers. The occurrence of signs of obstruction in the large leg vessels in all three cases (followed by gangrene of the foot in one case) was probably due to arterial embolism from the friable endocardial vegetations. There was no evidence of cardiac failure or auricular fibrillation, which also predispose to arterial block.

Of the two patients with staphylococcal septicaemia, signs of endocarditis were present in one of them on admission. Although the diagnosis was confirmed at necropsy, the small size of the vegetations and the repeatedly negative blood cultures during penicillin therapy are evidence that the staphylococcal infection had been controlled. Treatment, however, had been begun too late (blood culture showed nearly 5,000 organisms per c.cm.); irremediable damage had been done, and the patient died in uraemia. The other patient with staphylococcal endocarditis had two septicaemic relapses, and evidence of endocardial damage in the form of an aortic diastolic murmur was noted for the first time during the second relapse, although haematuria, anaemia, and persistent tachycardia were present earlier. The aortic diastolic murmur, the haematuria, and negative evidence of antecedent syphilitic or rheumatic infection were accepted as proof of the development of bacterial endocarditis. Although the valvular lesion is still present, the patient is fit and well 10 months after she was discharged from hospital.

The patient with Group A streptococcal septicaemia developed signs of fresh endocardial damage during the course of her illness. She was admitted with a history of mitral stenosis and had an apical systolic but no diastolic or aortic murmur. Blood cultures were persistently positive despite intensive sulphonamide therapy, and tachycardia, anaemia, and progressive wasting were present. About the time penicillin therapy was begun Osler's nodes and haematuria occurred, and four days later an aortic diastolic murmur appeared. When discharged from hospital, and again when seen by a cardiologist about one month later, she had aortic regurgitation in addition to mitral stenosis.

The beneficial response which these patients with acute bacterial endocarditis have shown to moderate dosage of penicillin is interesting in view of the failure of similar dosage in subacute bacterial endocarditis. Part of the explanation may lie in a greater sensitivity of the infecting organism to penicillin; or perhaps the more bulky and friable vegetations may allow the penicillin to permeate the clot more easily. Although three of the patients are now well and one improved 6 to 12 months after penicillin therapy was stopped, it is impossible to say what the long-term prognosis may be. With gross valvular damage, a heavy strain is put upon their cardiac reserve and they are obviously at the mercy of any infective condition—e.g., dental sepsis—that may lead to bacteriaemia and a fresh endocardial infection.

Summary

Six cases of acute bacterial endocarditis—three due to haemolytic streptococcus Group B, two to *Staph. aureus*, and one to haemolytic streptococcus Group A—were treated with moderate doses of penicillin. Four of the patients are alive 6 to 12 months after penicillin therapy was stopped; three are well and one has improved.*

Attention is directed to the frequency of infection of healthy heart valves by Group B streptococcus, which not uncommonly causes mild genital-tract sepsis, particularly after abortion.

The criteria for the diagnosis of acute bacterial endocarditis which may occur during the course of a generalized infection are discussed.

* ADDENDUM

Since this paper was completed, patient No. II of the series has died, six months after penicillin treatment had ceased. During this period the temperature was normal, blood cultures were sterile on four occasions, and the sedimentation rate was normal. She had severe mitral disease. Chronic congestive failure, which responded to mercurial diuretics for a time, developed. Death was due to pulmonary oedema following acute left heart failure.

At the necropsy dilatation and hypertrophy of both auricles and right ventricle and dilatation of the left ventricle were found. The tricuspid orifice was enlarged and the cusps slightly thickened. The mitral orifice was rather small, the valves thickened and contracted, and there were two large perforations of the cusps. A small vegetation on the mitral valve gave a growth of *B. coli* and enterococcus on culture. The kidneys were rather large and congested, and one kidney had scars from two infarcts. It may be concluded that this

patient had an acute bacterial endocarditis which was apparently cured by penicillin therapy, and that she died from acute heart failure.

We wish to thank Mr. James Wyatt, consultant to the puerperal sepsis unit, for his interest and help; Sir Bernard Spilsbury for the post-mortem reports on Cases II and VI; Mr. B. C. Maybury and Prof. W. G. Barnard for access to clinical and necropsy reports on Case III; Sisters Corcoran and Walshe and the nursing staff of the puerperal sepsis unit for their active co-operation in the nursing of the patients; Mr. E. W. Gregory for technical assistance; and the M.R.C. Penicillin Clinical Trials Committee for supplies of penicillin.

REFERENCES

Christie, R. V. (1945). *British Medical Journal*, **1**, 232.
Colebrook, L., and Purdie, A. W. (1937). *Lancet*, **2**, 1237.
Cunliffe, A. C., Gillam, G. G., and Williams, R. (1943). Ibid., **2**, 355.
Dawson, M. H., and Hunter, T. H. (1945). *J. Amer. med. Ass.*, **127**, 129.
Fleming, A. (1944). *Lancet*, **2**, 620.
Florey, M. E., and Florey, H. W. (1943). Ibid., **1**, 387.
Fry, R. M. (1938). Ibid., **1**, 199.
Hill, A. M., and Butler, H. M. (1940). *Med. J. Austral.*, **1**, 273.
Katz, L. N., and Elek, S. R. (1944). *J. Amer. med. Ass.*, **124**, 149.
Keefer, C. S., Blake, F. G., Marshall, E. K., jun., Lockwood, J. S., and Wood, W. B. (1943). Ibid., **122**, 1219.
Kehr, H. L., and Adelman, M. (1942). *Amer. J. Dis. Child.*, **64**, 487.
Keith, H. M., and Heilman, F. R. (1943). Ibid., **65**, 77.
Koletsky, S. (1941). *Ohio State med. J.*, **37**, 866.
Loewe, L., Rosenblatt, P., Greene, H. J., and Russell, M. (1944). *J. Amer. med. Ass.*, **124**, 144.
MacDonald, I. (1939). *Med. J. Austral.*, **2**, 471.
McLellan, N. W., and Goldbloom, A. (1942). *Canad. med. Ass. J.*, **46**, 136.
Ramsay, A. M., and Gillespie, M. (1941). *J. Obstet. Gynaec. Brit. Emp.*, **48**, 569.
Rosenthal, A. H., and Stone, F. M. (1940). *J. Amer. med. Ass.*, **114**, 840.
Thayer, W. S. (1931). Gibson Lectures, *Edinb. med. J.*, **38**, 237.
Willius, F. A. (1943). *Proc. Mayo Clin.*, **17**, 216.

STAPHYLOCOCCUS PYOGENES SEPTICAEMIA TREATED WITH PENICILLIN

REPORT OF TWO CASES

BY

LEONARD HOWELLS, M.D., B.Sc., M.R.C.P.

Lieut.-Col., R.A.M.C.; Officer in Charge, Medical Division of a General Hospital

R. R. HUGHES, M.D., M.R.C.P.

Major, R.A.M.C.; Medical Specialist

AND

R. RANKIN, M.B., B.Sc., Ch.B.

Capt., R.A.M.C.; Graded Pathologist

The following is an account of two cases of *Staphylococcus pyogenes* septicaemia treated with penicillin.

Case I

The patient was a marine aged 22. On Sept. 28, 1944, he developed headache, sweating, slight cough, and pain in the back; he remained on duty all night and was sent to the sick-bay the next day. On the 30th he was admitted to hospital still complaining of the above symptoms. On examination he was rather apathetic, temperature 101.6°, pulse rate 100, and respiratory rate 22 a minute; his throat was slightly injected, but no other abnormality was found.

By Oct. 1 his condition had deteriorated; his temperature was swinging to 102° F., and the pulse and respiratory rates were rising. He was confused, restless, and irritable, his heart apex beat was in the mid-clavicular line in the fifth left intercostal space, there was some neck rigidity, and Kernig's sign was slightly positive. In view of these findings a clinical diagnosis of meningococcal meningitis was made. Lumbar puncture was done under pentothal anaesthesia; the cerebrospinal fluid pressure was 200 mm., and the fluid was slightly murky in appearance; on laboratory examination it was found to contain 40 red blood cells and 9 white blood cells per c.mm. and 40 mg. of protein (no excess of globulin), 70 mg. of glucose, and 700 mg. of chlorides per 100 c.cm. The urine was loaded with albumin (0.75 g. Esbach), and on microscopical examination scanty epithelial cells, leucocytes, and granular casts were found. Blood examination showed a haemoglobin of 89%, red blood cells 4,750,000 per c.mm., and white blood cells 14,000 per c.mm., with 85% polymorphonuclears.

On Oct. 2 the patient was still confused and irritable, with a temperature swinging to 102° F. and raised pulse and respiratory rates. On examination the neck rigidity and Kernig's sign were more pronounced, the fundi were normal, all tendon reflexes were absent, and plantar responses showed voluntary withdrawal of both feet. The heart was enlarged, with the apex beat 4½ in. from the midline in the fifth left intercostal space, a systolic murmur was heard at the apex and base of the heart, and the blood pressure was 140/60. The white cell count had now risen to 23,600 per c.mm., with 84% polymorphs, the blood urea was 55 mg. per 100 c.cm., the urine was still loaded with albumin, and leucocytes and granular casts were still present.

During the day the patient's pulse rate had been rising steadily, and at 22.00 hours had reached 142 a minute. At this time he suddenly developed a left hemiparesis involving the limbs and face, and on examination his heart was found to be more dilated and the systolic murmur still present. In view of these developments it was now felt that a clinical diagnosis of infective endocarditis could be made; although this had not yet been confirmed by blood culture the dangerously ill condition of the patient made immediate specific treatment essential. Penicillin therapy was therefore started; he was given 100,000 units at 23.30 hours, followed by 40,000 units intramuscularly 3-hourly day and night.

By 09.00 hours on Oct. 3 he had been given 220,000 units of penicillin. His general condition had improved somewhat and his pulse rate had fallen to 108 a minute, but he was still in a state of low muttering delirium, his neck rigidity was more marked, and his hemiplegia was unchanged. The urine was loaded with albumin, the blood urea was 80 mg. per 100 c.cm., and the cerebrospinal fluid now contained 376 red blood cells per c.mm. Blood and cerebrospinal fluid cultures were made on this date and later; both were reported to contain *Staph. pyogenes*. The bacteriological report was as follows: "A smooth-growing well-pigmented strain of *Staph. pyogenes* was isolated after 36 hours. The organism was coagulase-positive, moderately haemolytic, and showed a sensitivity to sodium penicillin equalling that of the standard 'Oxford' strain." When re-examined at 19.00 hours his general condition was unchanged. He was still delirious, the neck rigidity and hemiparesis were still pronounced although he could now use his left arm a little, his heart apex beat was 1 in. outside the left mid-clavicular line in the fifth intercostal space, and a soft short apical diastolic murmur could be heard. The spleen was not palpable.

On Oct. 4 there was an improvement in the patient's general condition, his temperature had settled to the region of 99° F., and his pulse rate was steadily falling. He was, however, still delirious and the neck rigidity and hemiparesis were severe; the heart apex beat was well outside the left mid-clavicular line, and the soft apical diastolic murmur could still be heard. The blood urea was 60 mg. per 100 c.cm. On the 5th the patient's temperature was normal and his pulse and respiratory rates were falling rapidly. He was still very ill, but his condition had improved in the past 24 hours and he was having short lucid intervals. A crop of purpuric spots had appeared on the toes of both feet. The cerebrospinal fluid pressure was 250 mm.; the fluid contained 167 red blood cells per c.mm., and on culture was sterile. By 20.30 hours he had been given 1,020,000 units of penicillin; his condition was rapidly improving; he was fully conscious, with only occasional short periods of confusion, and was able to use his left hand to hold a feeding-cup.

By Oct. 6 the patient's condition had very much improved and he had been afebrile for the past 24 hours. He was still having occasional slight delirium and his neck rigidity was more pronounced; his hemiparesis was improving and he was now moving his left arm and leg a good deal. There was a left extensor plantar response. The heart apex beat was still well outside the mid-clavicular line in the fifth left intercostal space; there was a soft localized aortic systolic and a harsh apical diastolic murmur. The liver and spleen were not palpable. The blood urea was 55 mg. per 100 c.cm., the urine still contained albumin, and there were some leucocytes and an occasional granular cast in the deposit.

On Oct. 7 he was using his left arm and leg a good deal although weakness persisted; his condition was otherwise unchanged, and he was delirious at times. The next day an aortic diastolic murmur was heard for the first time. The white blood count was 14,150 per c.mm. with 81% polymorphs. A course of sulphapyridine was started with an initial dose of 2 g., followed by 2 g. four hours later, then 1 g. 4-hourly by mouth.

On Oct. 9 his general condition was very good, his appetite was satisfactory, and he was sleeping well with only very few short periods of delirium. He was still having an occasional rise of temperature to 99 or 100° F. On examination the heart apex beat was in the mid-clavicular line in the fifth left intercostal space; there was no palpable thrill. Auscultation revealed a rough aortic systolic murmur which was conducted along the subclavian and carotid arteries, and also a soft short aortic diastolic murmur conducted down the left border of the sternum. The pulse was collapsing, the blood pressure 140/40, and a pistol-shot murmur was audible over the femoral arteries. The spleen was not palpable. He was now using the left arm normally, but there were a slight weakness of the left lower face, a spastic left leg, and a left extensor plantar response. The abdominal reflexes were present but diminished on the left side. The blood urea had now fallen to 45 mg. per 100 c.cm. Radiographs showed definite enlargement of the heart to the left, with the general configuration of an early aortic lesion. There was also some hyperaemia at the base of the right lung.

The patient's condition was still improving on Oct. 10 and his neurological signs had almost completely cleared. On this date a

number of large haemorrhagic blisters appeared on the hands and feet. Red blood cells were found in the urine for the first time (specimens had been examined daily for these since admission). By the 12th he had had a total of 3,020,000 units of penicillin, and although there was an occasional rise of temperature to 99 or 100° the drug was discontinued. By Oct. 18 the patient's condition was excellent and he had been afebrile for the past 7 days. There was still some slight weakness of the left face, the to-and-fro aortic bruit was unchanged, and the heart was enlarged; the heart sounds, however, were much stronger. The blood count showed a haemoglobin of 79%; the red blood cells numbered 3,700,000 and white cells 10,600 per c.mm., with 68% polymorphs. The blood sedimentation rate was 4 mm. in 1 hour, and the urine still contained a few leucocytes, red cells, and granular casts. The sulphapyridine was now discontinued after a total dose of 50 g.

The patient was still very well on Oct. 23. He had been afebrile since the 11th, but the pulse rate was rising, and varied between 84 and 108 a minute. On examination there was slight weakness of the left lower face and of the left arm and leg, the abdominal reflexes were somewhat diminished on the left side, the left knee- and ankle-jerks were both slightly increased, and both plantar responses were flexor. The heart apex beat was 3½ in. from the midline in the fifth left intercostal space, the to-and-fro aortic murmur was still present but now very faint, and there was still a pistol-shot sound over the femoral and brachial vessels. The systolic blood pressure was 148 mm., the diastolic uncertain but probably about 48 mm. Hg.

On Nov. 11 he was feeling very well, and his appetite and sleep were good. He continued to be afebrile, but his pulse rate remained at 90 to 100 a minute. On examination there was a slight weakness of the left lower face; the left arm and leg were both normal and the plantar responses flexor. The heart apex beat was still diffuse and heaving, 4 in. from the midline in the fifth left intercostal space. On auscultation a rough systolic bruit could be heard over the whole of the praecordium, but was loudest in the aortic area and was conducted slightly along the carotid and subclavian arteries; a soft diastolic bruit was also audible over the whole praecordium, but loudest in the pulmonary area. The lungs and abdomen were normal; the spleen was not palpable. The blood sedimentation rate was 0.5 mm. in 1 hour; the Kahn test was negative and the blood count showed a haemoglobin of 85%, red cells 4,010,000, and white cells 9,300 per c.mm., with 69% polymorphs. The pulse was collapsing in type, the blood pressure 150/30, and a pistol-shot murmur was audible over both brachial and femoral vessels. On Nov. 11 he was evacuated to the United Kingdom.

Comment on Case I

This was a typical case of infective endocarditis due to *Staph. pyogenes* treated with penicillin and sulphapyridine. No primary focus was found, there being no evidence of staphylococcal infection and no history of any such condition. When the case was first seen the diagnosis was obscured by a subarachnoid haemorrhage and a hemiparesis, presumably the result of the rupture of a mycotic aneurysm; by the fifth day of the disease, however, the cardiac changes were definite enough to venture a clinical diagnosis, this being confirmed later by isolation of the organism from the blood and cerebrospinal fluid. Penicillin treatment was begun on the fifth day of the disease, and within 52 hours the temperature had fallen to normal: 3,020,000 units were given over a period of nine days. However, as he still showed occasional rises of temperature, this was followed by a course of 30 g. of sulphapyridine.

During the early stages of the illness the patient had the usual features of a septicaemia: temperature swinging to 102° F., rapid pulse and respiratory rates, a white blood cell count up to 23,000 per c.mm., and a haemoglobin which fell from 89% on the fourth day to 79% on the nineteenth day of illness. After treatment of the disease the temperature had been normal for 26 days, the white cell count was 9,300 per c.mm., the haemoglobin had risen to 85%, and the blood sedimentation rate was 0.5 mm. in 1 hour. One unsatisfactory feature was a pulse rate remaining persistently at the 90–100 level despite complete bed-rest.

The embolic phenomena were of particular interest. On the day after admission to hospital the patient was noted to have signs of slight meningeal irritation, and on lumbar puncture his cerebrospinal fluid was found to contain 40 red blood cells per c.mm. The meningeal signs gradually increased in severity, and 24 hours later he suddenly developed intense neck rigidity and a left hemiparesis, and the cerebrospinal fluid contained 376 red cells per c.mm. The neck rigidity gradually subsided during the next week. The hemiparesis was more persistent, but it improved steadily, and on discharge all that remained was slight weakness of the left lower face and minimal changes in the reflexes on the left side. It seems likely that the patient had an infected cerebral embolus which produced a mycotic aneurysm very early in the course of the disease, leaking slightly at first, and later more severely to produce a focal cerebral lesion. Other embolic manifestations were a crop of purpuric spots and, later, numerous large haemorrhagic vesicles on the toes and feet. Osler's nodes were not seen; there were no retinal emboli and no splenic enlargement at any time.

The renal changes provided some interesting and confusing features. At the time of the intracranial haemorrhage (the fourth day of the disease) there was heavy albuminuria, with granular casts in the urine and a blood urea estimated two days later at 80 mg. per 100 c.cm.; such changes are not uncommon with acute intracranial conditions like haemorrhage and meningitis, and are apparently not associated with renal damage. Together with the mental disturbance they raised the possibility of uraemia at that stage of the illness. The urine was examined for red blood cells each day, but these were not found until the 13th day of the disease; by this time the blood urea had fallen to 45 mg. per 100 c.cm., and there remained only a trace of albumin together with granular casts in the urine. These later changes were probably due to an embolic focal nephritis, and persisted for some time.

When questioned about previous heart trouble, after the acute phase of the illness was past, the patient admitted to an attack of "rheumatism" in childhood. This seems to have left no gross heart lesion, as he was able to exercise without undue discomfort and no heart lesion was discovered at several medical examinations during his naval service. On admission to hospital his heart was clinically normal; during the acute stages of the disease it rapidly enlarged, various changing murmurs were produced, and on the fifth day of the illness the blood pressure was 140/60. It was not until the 11th day that an aortic diastolic murmur was heard, and the following day his case had the classical features of an aortic regurgitation. On consideration of these findings it seems possible that there may have been some slight rheumatic damage to the aortic valve which determined the localization of the septicaemia in this situation, and that this damage was much increased by the present illness. As the septicaemic condition subsided the heart diminished in size, and we are under the impression that the murmurs became less intense, but at the time of discharge from hospital there could be no doubt that he had a severe aortic leak.

While, in view of the short period of observation, it is realized that the result in this case cannot be regarded as an undoubted cure, we feel that it is most encouraging and that penicillin is worthy of trial in other cases of this condition.

Case II

The patient, a sapper aged 24, was admitted to hospital on Aug. 27, 1944. His illness had begun on Aug. 21 with a sore throat, fever, and general malaise. On admission he looked ill; his temperature was 103° F., pulse rate 100, and respiratory rate 25 a minute. The tonsils were considerably enlarged, oedematous, and covered by a yellowish follicular exudate. There were no abnormal signs in the heart, lungs, abdomen, or central nervous system. Examination of a throat swab was reported upon as follows: "Direct film showed Vincent's organisms and a few Gram-positive cocci, and on culture non-haemolytic streptococci and a scanty growth of staphylococci were obtained; examination for K.L.B. was negative." He was given sulphanilamide, 2 g. initial dose, followed by 1 g. every four hours. On Aug. 28 he had two rigors, the temperature reaching 103.8° F.

On Aug. 29 there was a slight deterioration in his general condition, with no change in the appearance of the throat but a decrease in the fever during the day. A pleural friction rub was heard in the right axillary region. The urine contained a trace of albumin. Examination of a blood film for malaria parasites was negative. The total white cell count was 7,200 per c.mm., with 50% polymorphonuclears, 8% small lymphocytes, 30% large lymphocytes and 12% monocytes. He had now received 12 g. of sulphanilamide with no apparent improvement, so it was decided to substitute sulphathiazole, 1 g. every four hours, instead.

During Aug. 30 and 31 the fever varied from 97 to 103° F., the pulse rate rose to 128 a minute, and he was now seriously ill with no change in the condition of the throat. On Sept. 1 the spleen was palpable clinically for the first time, the pleural friction rub

persisted, and he began to expectorate blood-stained sputum. The tonsils were still greatly enlarged and covered by a yellowish exudate. Sputum examination for tubercle bacilli was negative.

Blood culture on Sept. 2 gave a good growth of *Staph. pyogenes* (confirmed two days later, when another good growth was obtained). The organism had the following characteristics: a smooth moderately pigmented strain of *Staph. pyogenes*, non-haemolytic, coagulase-positive; penicillin sensitivity equal to that of the standard "Oxford" strain. It was now clear that the patient had a general septicaemia, and in spite of having received 12 g. of sulphanilamide and 25 g. of sulphathiazole he was getting steadily worse. Sulphathiazole treatment was stopped, and at 22.00 hours penicillin was given instead, in doses of 16,666 units, by intramuscular injection every three hours. The temperature at 22.00 hours was 102° F., and the pulse rate 110 a minute. No pathogens were obtained from culture of a throat swab. The total white cell count was still relatively low considering the nature of the infection—namely, 6,800 per c.mm., with 50% polymorphs, 27% small lymphocytes, 19% large lymphocytes, and 4% monocytes. On Sept. 3 and 4 a slight lowering of the temperature and some improvement in his general condition were apparent. On the 5th the temperature dropped to normal and was accompanied by a striking improvement in the patient's general condition and in the local appearance of the throat. The spleen was no longer palpable and the pleural friction rub could not be heard.

Subsequent Progress.—There was a rise of temperature to 100° F. on Sept. 6 and 7 and to 99° F. on Sept. 9 and 10, but subsequently the temperature and pulse rate remained at normal levels. Penicillin was discontinued on Sept. 11, as the patient had now received 1,133,288 units. By this time all clinical evidence of septicaemia had gone and the appearance of the throat was normal. He continued to make an uneventful recovery, with no residual signs of disease in any system, and on Sept. 20 was evacuated to the United Kingdom for a period of convalescence.

Comment on Case II

This was a case of *Staph. pyogenes* septicaemia associated with acute tonsillitis. The patient's resistance against the infection was poor, as was evidenced by a serious deterioration in his clinical condition and by the unsatisfactory white blood cell response. Treatment with 12 g. of sulphanilamide followed by 25 g. of sulphathiazole failed to produce any improvement in the local tonsillar infection or in the general condition of the patient. Penicillin was administered at a critical stage of the illness, and within 56 hours was followed by a dramatic improvement and, a few days later, by a complete and uncomplicated recovery.

Summary

The above two cases present encouraging features in the treatment of *Staph. pyogenes* septicaemia with penicillin. In the first case the favourable result was probably assisted by sulphapyridine therapy, but in the second case sulphanilamide and sulphathiazole each failed to produce any improvement in the condition. It is felt that these results may encourage others to employ and observe the effect of penicillin therapy in similar cases.

We wish to thank Col. F. G. Flood, *M.C.*, officer commanding the military hospital, for permission to publish this report.

The 150th annual report by the Managers of Glasgow Royal Infirmary, for the year 1944, shows that a very large volume of work was done for the sick and injured from all parts of Britain, including a great many Service cases treated in the wards. For a long time wards have been set aside for the treatment of burns, and more of these injuries have been dealt with at the Glasgow Royal Infirmary than at any other hospital in the British Isles. In view of the need for further research on various aspects of the treatment of burns, the Medical Research Council, in agreement with the managers of the Infirmary, decided to appoint a junior surgeon to give whole-time assistance to Mr. A. M. Clark, who has been in charge of the burns wards for several years, and to establish a laboratory team to survey the problem along with other members of the staff. During last year 318 patients suffering from burns and scalds were admitted. The outstanding features were the greatly reduced death rate—5.6%—and the elimination to a very large extent of streptococcal infection, the main source of trouble in burns. All out-patients with burn injuries are now treated in the Unit; they number about a thousand a year. During 1944 the Infirmary received a very considerable supply of penicillin for the treatment of military and civilian cases. Large supplies were distributed to other hospitals in Glasgow, Lanarkshire, Stirlingshire, and Renfrewshire, and the Infirmary is not only a distributive centre but an advisory centre for the use of penicillin.

LOCAL PENICILLIN THERAPY IN OPHTHALMIA NEONATORUM*

BY

ARNOLD SORSBY, M.D., F.R.C.S.

(White Oak (L.C.C.) Hospital, Swanley)

In an earlier communication (Sorsby and Hoffa, 1945) an account was given of the use of penicillin for local therapy in 47 cases of ophthalmia neonatorum. It was shown that consistent results could be obtained when drops in a concentration of not less than 2,500 units per c.cm. were used; of 22 cases so treated 21 recovered, against only 3 out of 8, 4 out of 7, and 6 out of 10 treated with penicillin in concentrations of 500, 1,000, and 1,500 units respectively. The gratifying results obtained with penicillin in adequate concentration had been achieved by instilling one drop of the solution at half-hourly intervals for 3 hours, then hourly for 24 hours, and 2-hourly subsequently. None of these 21 successfully treated cases took longer than 100 hours to show a clinical cure, and in 6 cases clinical cure was obtained within 3 to 24 hours. It was indicated that all the common causal organisms of ophthalmia neonatorum, including the virus of inclusion blennorrhoea, appeared to respond to penicillin, though perhaps to varying degrees, diphtheroid bacilli probably being the most resistant.

A Further Series of 38 Cases

Like the last 22 cases in the previous series these 38 new cases have all been treated with penicillin in a concentration of 2,500 units per c.cm., but the frequency of instillation has been different: at longer intervals in 13 and at shorter intervals in 25 cases.

(*a*) *Thirteen cases treated with drops of penicillin at intervals of 1 hour for 6 hours, then 2-hourly for 24 hours, and subsequently at 3-hourly intervals.*—All these responded well, but one case relapsed after 24 hours and another after 5 days (both of these being finally cleared by a course of sulphamezathine for 5 days and 2 days respectively). The clinical details on these 13 cases are summarized in Tables I and II.

TABLE I.—*Time taken for Clinical Cure: in Relation to Severity and Distribution of the Affection*

	No. of Cases	Clinical Cure in
Mild:		
Unilateral	3	4, 48, and 56 hours respectively
Bilateral	0	
Moderate:		
Unilateral	2	30* and 38 hours respectively
Bilateral	3	58, 60,† and 60 hours respectively
Severe:		
Unilateral	1	20 hours
Bilateral	4	4, 18, 26, and 34 hours respectively

* Mild relapse after 24 hours. † Relapse after 5 days.

TABLE II.—*Time taken for Clinical Cure: in Relation to Causal Organism and Severity of the Affection*

	No. of Cases	Clinical Cure in
Gonococcus:		
Mild	1	4 hours
Moderate	0	
Severe	3	20, 26, and 34 hours respectively
Gram-positive cocci		
Severe	1	18 hours
Staph. aureus:		
Severe	1	4 ,,
Diphtheroids:		
Mild	1	56 ,,
Inclusion bodies present (with Gram-positive cocci and Gram-positive bacilli respectively):		
Moderate	2	30* and 38 hours respectively
No organisms or inclusion bodies present:		
Mild	1	48 hours
Moderate	3	58, 60,† and 60 hours respectively

* Mild relapse after 24 hours. Inclusion bodies were also present in scrapings from the mother's cervix.

† Relapse after 5 days. The culture had shown the presence of *Ps. pyocyanea*, probably a contaminant.

These results do not appear to be substantially different from those obtained in the 22 cases treated at more frequent intervals.

* A report to the Penicillin Clinical Trials Committee of the Medical Research Council.

(*b*) *Twenty-five cases treated with drops of penicillin initially at intervals of 5 minutes, then half-hourly, and subsequently hourly, followed by 2-hourly intervals.*—This unusual procedure requires some explanation. In the previous communication it was reported that when penicillin is used at half-hourly intervals irrigation was generally required before the first 12 applications of drops—i.e., for the first 6 hours of treatment. As drops are washed out of the conjunctival sac within a matter of minutes it was thought desirable to instil penicillin at 5-minute intervals. It was then found that no further irrigation was needed beyond the first one carried out before instilling the penicillin, for all tendency to the formation of pus was rapidly suppressed. When all discharge had ceased penicillin was continued at half-hourly intervals till the eye was dry; thereafter it was instilled hourly for 12 hours and 2-hourly for a further 24 hours. In this series 2 cases showed a distinctly poor response. One was a case of moderate bilateral gonococcal ophthalmia in a premature baby. Sulphamezathine treatment cleared the eyes within 3 days, only to relapse after 13 days and to be cleared finally by a second course of this sulphonamide. The second case was also of moderate severity; diphtheroids were present in the smear, but the culture was negative. This case responded well to sulphamezathine within 4 days.

The clinical details of this group of cases are shown in the following summary tables (III and IV).

TABLE III.—*Time taken for Clinical Cure: in Relation to Severity and Distribution of the Affection*

	No. of Cases	Clinical Cure in
Mild:		
Unilateral	3	3, 6, and 21 hours respectively
Bilateral	3	25 minutes, 1½, and 16 hours respectively
Moderate:		
Unilateral	1	22 hours*
Bilateral	12	3,† 3½, 3½, 5½, 6½, 7, 11½,‡ 13½, 33,§ and 38 hours respectively, with 2 further cases showing no response
Severe:		
Unilateral	0	
Bilateral	6	4, 10, 10, 10½, 16, and 16½‖ hours respectively

TABLE IV.—*Time taken for Clinical Cure: in Relation to Causal Organism and Severity of the Affection*

	No. of Cases	Clinical Cure in
Gonococcus:		
Mild	1	1½ hours
Moderate	1	No response
Severe	3	4, 10, and 10½ hours respectively
Staph. aureus:		
Mild	1	6 hours
Moderate	5	5½, 6½, 7, 11½,‡¶ and 22* hours respectively
Severe	2	10 and 16½‖ hours respectively
Diphtheroids:		
Moderate	3	3† and 3½ hours, and no response respectively
Haemolytic streptococcus:		
Mild	1	25 minutes
Gram-neg. diplococcus:		
Moderate	1	33 hours§
Friedländer's bacillus:		
Mild	1	16 ,,
Morax-Axenfeld bacillus:		
Severe	1	16 ,,
No organisms or inclusion bodies:		
Moderate	1	13½ ,,
Inclusion bodies present without organisms:		
Mild	1	21 ,,
Moderate	1	38 ,,
Inclusion bodies present with organisms (diphtheroids and Gram-positive cocci respectively):		
Mild	1	3 ,,
Moderate	1	3½ ,,

Footnotes to Tables III and IV

* Relapsed after 24 hours. A second course of penicillin brought about a clinical cure in 8 hours, only to relapse again. Finally cleared by sulphamezathine in 3 days.

† Mild relapse; cleared by a further course in 4 hours.

‡ Relapse 5 days later. Sulphamezathine for 68 hours; baby removed against advice with eyes not quite clear.

§ Mild relapse after 6 days. Cleared by further course of penicillin in 41 hours.

‖ Mild relapse 4 days later. Cleared by a further course in 2½ hours.

¶ Inclusion bodies were present in scrapings from the mother's cervix.

This group of 25 cases therefore contains 2 that showed no response to intensive penicillin therapy and no fewer than 5 which showed initial clinical cure only to be followed by a relapse, which, however, was cleared in 3 out of the 5 cases by a second course of penicillin, suggesting that too early suspension of treatment rather than inefficacy of penicillin was responsible for these partial failures. In contrast to these 2 total and 5 partial failures the remaining 18 cases showed distinctly gratifying results, the time taken for clinical cure being 38 hours at the longest and 25 minutes at the best, with an average of just under 10 hours. The following summary table (V) brings out the essential features:

TABLE V

Time taken for Clinical Cure	Number of Cases
Up to 1 hour	1
1–4 hours	4
4–8 ,,	5
8–12 ,,	3
12–16 ,,	1
16–20 ,,	2
21 ,,	1
38 ,,	1

The 5 cases that relapsed had initially showed clinical cure in 3, 11½, 16½, 22, and 33 hours respectively; the 2 cases that had failed to respond had been treated for 40 and 72 hours respectively.

So far as the time taken for clinical cure is concerned, these 18 successful cases (out of 25) compare favourably with the 20 comparable cases (out of 22) and the 11 (out of 13) treated by the same concentration of penicillin but less intensively. The comparative figures in Table VI show this clearly:

TABLE VI.—*Penicillin Drops in Concentration of 2,500 Units*

Time taken for Clinical Cure	Initial Treatment		
	At 5-minute Intervals	At Half-hourly Intervals	At Hourly Intervals
	Cases	Cases	Cases
Within 12 hours	13	2	2
12–24 hours	4	4	2
25–48 ,,	1	7	4
49–72 ,,	—	3	3
Over 72 ,,	—	4	—
Total	18	20	11

Average time per case: 10, 44, and 33 hours in the three series respectively.

It would therefore appear that intensive penicillin therapy (at 5-minute intervals) reduced the time taken for a clinical cure to one-third or one-quarter of that required when this drug is applied at hourly or half-hourly intervals.

Rapidity of Clinical Cure in Relation to Severity of Affection

No fine distinctions as to any difference in response by heavy and less heavy infections can be drawn from the limited material so far available. There is nothing to suggest that clinically

TABLE VII

	Initial Treatment		
	At 5-minute Intervals (25 Cases)	At Half-hourly Intervals (22 Cases)	At Hourly Intervals (13 Cases)
Mild	6 cases: clinical cure in 25 minutes to 21 hours Average: 8 hours No failures No relapses	5 cases: clinical cure in 7 to 78 hours Average: 51 hours No failures No relapses	3 cases: clinical cure in 4 to 36 hours Average: 36 hours No failures No relapses
Moderate	13 cases: clinical cure in 3 to 38 hours Average (of 11 cases): 13 hours *Two failures* *Four relapses*	11 cases: clinical cure in 3 to 100 hours Average: 46 hours No failures No relapses	5 cases: clinical cure in 30 to 60 hours Average: 41 hours No failures *Two relapses*
Severe	6 cases: clinical cure in 4 to 16½ hours Average: 11 hours No failures *One relapse*	6 cases: clinical cure in 36 to 40 hours Average (of 5 cases): 37 hours *One failure* No relapses	5 cases: clinical cure in 4 to 36 hours Average: 16 hours No failures No relapses

severe cases respond less readily. In fact, in the present series the troublesome cases were almost confined to the group regarded as moderate; the 2 cases that gave no response to penicillin and 6 of the 7 cases that showed relapse were all initially cases of moderate severity. The summary of results given in Table VII, which includes the series of 22 comparable cases previously reported, brings out the salient features.

Efficacy in Relation to Causal Organisms

The following summary table of aetiological types (Table VIII) brings out the time taken to achieve clinical cure in the successfully treated cases and the number of failures and of relapses in each group. The table deals with the 38 cases recorded here and the 22 previously reported.

TABLE VIII

	Initial Treatment		
	At 5-minute Intervals (25 Cases)	At Half-hourly Intervals (22 Cases)	At Hourly Intervals (13 Cases)
Gonococcus	5 cases: 1½ to 10½ hours Average (of 4 cases): 7½ hours *One failure* No relapses	5 cases: 24 to 40 hours Average (of 4* cases): 35 hours No failures No relapses	4 cases: 4 to 34 hours Average: 21 hours No failures No relapses
Staph. aureus	8 cases: 5½ to 22 hours Average: 10½ hrs. No failures *Three relapses*	5 cases: 3 to 60 hours Average: 20 hours No failures No relapses	1 case: 4 hours No failures No relapses
Staph. albus	—	4 cases: 27 to 43 hours Average: 37 hours No failures No relapses	—
Diphtheroids	3 cases: 3 and 3½ hours respectively (in 2 cases) *One failure* *One relapse*	4 cases: 50 to 100 hours Average (of 3 cases): 83 hours *One failure* No relapses	1 case: 56 hours No failure No relapse
Haemolytic streptococcus	1 case: 25 mins. No failure No relapse		
Gram-negative diplococci	1 case: 33 hours No failure *Relapse*		
Friedländer's bacillus	1 case: 16 hours No failure No relapse	—	—
Morax-Axenfeld bacillus	1 case: 16 hours No failure No relapse		
Gram-positive cocci	—	—	1 case: 18 hours No failure No relapse
No organisms or inclusion bodies	1 case: 13½ hours No failure No relapse	2 cases: 12 and 70 hours respectively No failures No relapses	4 cases: 48 to 60 hours Average: 57 hours No failures *One relapse*
Virus presumed from presence of inclusion bodies	4 cases: 3 to 38 hours Average: 16 hours No failures No relapses	2 cases: 78 and 100 hours respectively Average: 89 hours No failures No relapses	2 cases: 30 and 38 hours respectively No failures *One relapse*

* One case omitted, as the complication of corneal ulcer—present on admission—delayed a return to normal.

In this total of 60 cases there were therefore 1 failure in a series of 14 cases showing the gonococcus and 2 failures in a series of 8 cases showing diphtheroids; there were no failures in the 14 cases due to *Staph. aureus* and in the 4 showing *Staph. albus*, while the single cases due to *Str. haemolyticus*, Friedländer's bacillus, Morax-Axenfeld bacillus, Gram-negative diplococci, and Gram-positive cocci all responded. It would therefore seem that all the common causal organisms of ophthalmia neonatorum respond to penicillin therapy; no real significance can be attached to the 3 failures (1 gonococcus and 2 diphtheroids) in view of the satisfactory response in other (and more) cases of this type. It is also noteworthy that no failures were seen in the 7 cases in which no organism or inclusion bodies were present and in the 8 cases in which a virus appeared to be the responsible agent, judging by the presence of epithelial inclusion bodies.

At this stage it is unwarrantable to draw any conclusions as to greater clinical susceptibility of the different varieties of ophthalmia neonatorum to penicillin, but it is clear that neither the occasional failures nor relapses are explicable in terms of bacterial morphology.

Mode of Use

For the present something like a 5-stage system is in use:

1. On admission a swab is taken for smear and culture and the eye is irrigated with half-normal saline at room temperature. A drop of adrenaline 1 in 1,000 is instilled and a scraping is taken from the palpebral conjunctiva for examination for the presence of inclusion bodies. Gutt. atropin. sulph. 1% are instilled if the cornea is involved.

2. Any pus that may have accumulated is wiped away with moist pledgets of cotton-wool, and one drop of penicillin in a concentration of 2,500 units per c.cm. is instilled. The baby is now returned to its cot.

3. The instillation of penicillin is continued every 5 minutes until there is no discharge. Irrigation is not needed, as pus does not form to any extent; such thin mucoid discharge (with a yellowish tinge from the admixture of penicillin) as is present can be ignored, or, if it clings to the lid margin, wiped away with moist pledgets of cotton-wool. Generally half an hour to three hours' treatment (6 to 30 applications) is necessary before the eye is dry. This part of the treatment requires the full-time attention of the nurse.

4. When there is no longer any discharge the instillation of penicillin is continued at half-hourly intervals. At this stage the conjunctiva rapidly assumes a normal appearance. When all swelling and tendency to moistness have disappeared—and this generally involves treatment for about 6 to 12 hours—penicillin therapy is continued to consolidate the clinical cure.

5. Penicillin is now instilled hourly for 12 hours and 2-hourly for a further 24 hours.

Penicillin is well tolerated by the infant eye; occasionally a mild transitory flushing of the conjunctiva is observed. (In the present series—as in the previous one—no complications of any kind have been observed, but in a case treated subsequent to those recorded here there was an instantaneous and marked swelling of the conjunctiva and lids on the instillation of penicillin in the form of a lamella; the swelling subsided within 12 hours, the child having in the meantime been put on sulphamezathine treatment.)

Comparison with General Sulphonamide Therapy

It is likely that general sulphonamide therapy of ophthalmia neonatorum is already obsolete as a routine procedure. The results obtained by the intensive application of penicillin locally are almost as strikingly superior to those obtained by sulphonamide therapy as these in turn were over the older methods. The reduction of the duration of treatment from weeks by the older methods to days by the sulphonamides is paralleled by the reduction of treatment from several days by the sulphonamides to as many hours by penicillin. Should it prove possible to standardize penicillin therapy to a less exacting routine than is required at present, an ideal method of treatment, free from the disadvantages of systemic medication, will indeed be achieved.

Summary

Local therapy by penicillin in a concentration of 2,500 units per c.cm. proved effective in 21 out of 22 cases of ophthalmia neonatorum reported previously.

In a further series of 38 cases reported here, 2 cases failed to respond.

Twenty-five of 38 cases had been treated by intensive application of penicillin (drops instilled every 5 minutes). The results were better than those obtained by the instillation of penicillin at half-hourly intervals (as in the 22 cases reported previously) or at hourly intervals (as in 13 cases in the present series).

The 25 cases treated intensively included the 2 cases that showed no response and 5 cases that relapsed after initial clinical cure; 4 of these 5 relapses responded well to a second course of penicillin. Of the 18 cases that responded initially to treatment 13 showed clinical cure within 12 hours, and a further 4 within 12 to 24 hours.

Severity of the clinical condition does not appear to affect the duration of treatment.

Penicillin is effective against all the common causal organisms of ophthalmia neonatorum, including the presumed virus of inclusion blennorrhoea.

Local penicillin therapy is likely to replace general sulphonamide treatment as the method of choice in ophthalmia neonatorum.

Thanks are due to Dr. E. N. Young, of the Southern Group (L.C.C.) Laboratories, for her painstaking bacteriological examinations, and to Dr. Olga Blum, Dr. Rela Bartfeld, the Matron, and Sister Condon, of White Oak Hospital, for their collaboration. I am indebted to Prof. Sir Alexander Fleming for his interest and help.

REFERENCE

Sorsby, A., and Hoffa, E. (1945). *British Medical Journal*, **1**, 114.

PENICILLIN TREATMENT OF HAND INFECTIONS

BY

G. J. GROSSMARK, M.R.C.S., L.R.C.P.

AND

L. W. PLEWES, F.R.C.S.Ed.

The local use of penicillin in powder and paste (lanette wax form) in the treatment of hand and finger infections has been shown by Florey and Williams (1944) to reduce the time required to clear up sepsis, to diminish pain, and to save an average of nine man-days for each case as compared with controls. In this series 100 cases of paronychia, pulp whitlow, web-space infections, and suppurative tenosynovitis, in all groups of the population, have been treated with penicillin liquid and cream locally, with results that mainly bear out Florey's findings, but with two main differences—namely, in the results of treatment of osteomyelitis and suppurative tenosynovitis.

Principles of Treatment

In all cases in which incision was necessary general anaesthesia was used, and a blood-pressure cuff to give a bloodless field. There was no soaking of the fingers or application of heat of any kind. Penicillin was applied either in liquid form or as a cream on a fine-mesh gauze wick. The cream consisted of penicillin mixed with a base—eucerin L.M. The penicillin in this cream was found by our pathologist (Dr. Seiler) to keep its potency for a longer time than the penicillin in lanette wax. The dressings were all done in a special dressing unit; the dresser used the "no-touch technique," and modern methods of prevention of cross-infection were employed. Of the total 100 cases (representing over 500 dressings) the number of times a second organism was grown was 19. Cultures were taken at the time of operation, and sensitivity to penicillin was tested. Cultures were also taken as a routine at the change of each dressing.

Dressings were done once daily if liquid penicillin was used, or every two days with penicillin cream, since it had previously been found that, although liquid penicillin in an open wound lost its activity in about 24 hours, when cream (penicillin–eucerin L.M.) was used penicillin activity could still be demonstrated at the end of 48 hours.

Surgical procedures in all groups followed orthodox lines, except in the treatment of acute suppurative tenosynovitis. In this condition previous experience with orthodox incisions was so discouraging that a new technique was used. It was based on the observation that acute pyogenic infection of joints responded dramatically to repeated aspiration of the infected fluid and injection of penicillin liquid. None of these fingers was incised.

Results

Pulp Infections.—Thirty-six pulp infections arrived at the hospital, having had throbbing fingers for an average of seven days. In every case the organism was a sensitive *Staph. aureus* (coagulase-positive). In three-quarters of these cases the operation was the usual bilateral incision, and the remaining quarter had either the "hockey-stick" or the "fish-mouth" incision. None of these cases was treated as an in-patient, nor was any splinting done, and the average number of dressings was six. In about half the cases sloughing was present to an extent that mechanical removal was required, and here the time taken to heal was twice as long as when sloughing was not a feature. The occurrence of sloughing seemed to bear no relation to the length of time before operation. The average number of days to "no growth" was 9, and the period off work 17. All the end-results were good.

Paronychia.—There were 32 cases in this group. In all except four the causative organism was *Staph. aureus* (the others, *Str. pyogenes*). Fourteen of these cases had pus under the nail by the time they were first seen, and enough nail was removed at operation to allow access of the penicillin cream to all the infected area. The average time before being seen at hospital was 10 days. In just over half the operations it was found necessary to open the finger on both sides. In the remainder one lateral incision sufficed. On one occasion the pus could be aspirated through a needle, followed by penicillin injection through the same needle. Dressings were done at 48-hour intervals, and on an average four dressings were required. For all this group the average number of days off work was 12; the average number of days before a sterile culture was obtained was 5. The final result was satisfactory in every case.

Web-space Infections.—This group contained 23 cases, and the average time before treatment was 11 days. The operation consisted of an incision between the distal crease of the palm distally to the beginning of the web. Fourteen of these cases were infected by a sensitive *Staph. aureus*. The average time to "no growth" was 9 days and off-work 19 days; each case required on an average seven dressings. Sloughing as a prominent feature was present only once, and chemotherapy was used on two of four patients admitted (because of lymphangitis or adenitis).

Tendon-sheath Infections.—There were nine patients who had an acute suppurative tenosynovitis affecting one of the fingers for an average of four days, the organism in six cases being *Staph aureus*, in three *Str. pyogenes*. None of these fingers was incised; instead, pus from the sheath was aspirated opposite the proximal phalanx, and after aspiration of all that was possible 1 or 2 c.cm. of penicillin was injected through the same needle. The puncture wound was then sealed off with collodion. No splinting was done, and all of these patients were treated as in-patients; the first five cases were given sulphathiazole for five or six days. Active movements were encouraged from the first, and the relief of pain was dramatic in all but one case. This case failed to respond to treatment, and amputation was necessary because of a fulminating infection of the whole finger. In seven cases the results were perfect after one, two, three, or four punctures of the sheath (at 48-hour intervals). One patient apparently had a perfect result after four treatments (aspiration of pus and injection of liquid penicillin), but a month later had developed a slight flexion deformity of the finger. This has remained stationary, and the finger can be used. The average stay in hospital for this group was seven days, and the time off work 13 days. There was no difference in the clinical course when sulphathiazole was used, and the last four cases (all perfect results) were not given systemic chemotherapy.

Osteomyelitis.—Another group, comprising cases of osteomyelitis, were tried with local penicillin, and although one could get negative cultures in a time not appreciably longer than with the above groups, the clinical course of the disease did not seem to be affected. The results of treatment were uniformly bad. It is difficult to report accurately on this group because, first, amputation was often carried out relatively early; secondly, some of the cases were sent elsewhere for *x*-ray therapy; and, finally, some are still unhealed.

Comments

Early on it was realized that removal of slough helped considerably, and the results show this to be true. After trying trypsin and pyruvic acid it was felt that simple excision with a pair of sharp nail scissors was not only quicker but usually more effective.

When this research was started penicillin at a strength of 50 units per c.cm. was used for a few weeks. Subsequently the strength varied from 50 to 2,000 units per c.cm. From our analysis the strength of the penicillin employed had no effect on the result.

Many hands were swollen as a result of prolonged soaking, and others (about 30%) had had operations (mostly without anaesthesia) before attending hospital. For all groups the average time before being seen was nine days—longest in the web-infection group, and shortest in the tenosynovitis group, probably because of the severity of the pain and disability in the latter.

The most striking effect of penicillin treatment as compared with other methods was the freedom from pain post-operatively, especially in the tenosynovitis series, and the absence of post-operative complications (spreading infection, lymphangitis, adenitis). The most gratifying finding was the spectacular results in acute suppurative tenosynovitis, a condition attended by distressing results in our hands prior to aspiration-injection therapy.

Conclusions

Penicillin used locally is effective in the treatment of infections of the fingers, such as pulp whitlow, paronychia, and web-space infections, when the organism is susceptible.

It is possible to get perfect results in the treatment of acute suppurative tenosynovitis of the fingers by aspiration of the sheath and injection of penicillin.

It is important to remove slough when using penicillin locally.

Local penicillin has no apparent beneficial effect on the end-result in acute osteomyelitis of the phalanges.

Penicillin cream (in a new base—eucerin L.M.—Dr. Seiler) is an improvement on other methods of applying penicillin locally.

REFERENCE

Florey, M. E., and Williams, R. E. O. (1944). *Lancet*, **1**, 73.

INFECTED BRONCHIECTASIS TREATED WITH INTRATRACHEAL PENICILLIN

BY

H. B. MAY, M.D., M.R.C.P.

Assistant Director, Clinical Laboratory, London Hospital

AND

M. A. FLOYER, M.B., M.R.C.P.

Medical Registrar, London Hospital

In most cases of bronchiectasis there is a secondary infection of the dilated bronchi and bronchioles. It is rare for this to be caused by one organism, but the mixed flora in the sputum often includes bacteria susceptible to the action of penicillin, and it was thought that this antibacterial chemotherapeutic agent might have a beneficial effect in the treatment of the disease. It is clear that, in general, a reduction in the bacterial infection of the bronchiectatic cavities, or even their sterilization, although reducing the volume of sputum, would not affect the deformity of the air passages, and infection would recur, but the improvement in the patient's local and general condition might enable a lobectomy to be carried out with a considerable reduction in the operative risk.

Although penicillin would be fully active in the presence of pus, the coexistence of a mixture of organisms of varying susceptibility implies the desirability of obtaining a relatively high concentration of penicillin in the cavities; this cannot, in our experience, be obtained by systemic treatment. An aerosol containing penicillin, as used by Knott and Clark (1945), would probably be equally ineffective because of the deficient aeration of the collapsed area of lung connected with the dilated bronchi. It was therefore decided that the best method of getting adequate penicillin to the infected area was by injection of a solution into the trachea, using a technique similar to that employed in carrying out bronchography.

Technique

The patient practised postural drainage for 20 to 40 minutes before the injection. The skin was rendered analgesic with 2% procaine in the midline of the neck, between the cricoid cartilage and the first ring of the trachea. 2 c.cm. of 2% amethocaine hydrochloride (decicain) was then injected rapidly through a No. 14 needle into the trachea and the patient was asked to try to avoid coughing. The syringe was removed from the needle, which was left *in situ*, and the patient was placed in such a position that fluid introduced into the trachea would run into the bronchiectatic cavities—e.g., well over to the left if the left lower lobe is affected. A solution of penicillin containing 10,000 units per c.cm. was prepared and 5 to 8 c.cm. injected rapidly through the needle into the trachea, the needle being immediately withdrawn and the patient encouraged not to cough. The patient was kept leaning in the appropriate position for 15 minutes after the injection. It was found that with an injection of 50,000 units the sputum coughed up 12 hours after the injection contained between 10 and 100 units of penicillin per c.cm., and with the larger doses of penicillin—i.e., 80,000 units—the sputum after 24 hours still contained up to 10 units per c.cm. Daily treatment was carried out for eight to ten days, and the only complaint from the patients was of some soreness of the skin of the neck. All solutions were made up in saline, and a very fine needle could therefore be used.

Case Records

Case 1.—The wife of a publican was admitted to hospital on Oct. 15, 1944, complaining of pleuritic pain in the right lower chest and general malaise. She had had a perforated duodenal ulcer three months before; this had been sutured under inhalation anaesthesia, but owing to war conditions no details of her immediate post-operative progress are now available. Since the operation she had had recurrent colds and cough, with sputum, and a general feeling of malaise and undue shortness of breath on exertion. On admission it was found that she had coarse crepitations at both bases, with a pleural friction rub at the right base. After two days a small pleural effusion appeared on the right side; this resolved in one week with rest in bed. However, the moist sounds and bronchial breathing persisted at the left base, and a radiograph indicated some fibrosis in this area. Bronchograms revealed an early cylindrical bronchiectasis at the left lower lobe. Her sputum, which was fairly copious, averaging 1 oz. to 2 oz. a day, was purulent and non-offensive, and culturally showed a predominant growth of a pneumococcus sensitive to penicillin; no tubercle bacilli were present. Her haemoglobin was 86% (100% = 14.9 g. of haemoglobin), and she had a normal white cell count. Her sedimentation rate was the upper limit of normal. She was treated with postural drainage in hospital with some improvement in symptoms, but she still produced copious sputum. Intratracheal penicillin was then started, consisting of 50,000 units of penicillin intratracheally for 3 days and 80,000 units for the next 5 days. Owing to her domestic responsibilities she was given the second part of the treatment as an out-patient. Her sputum became mucoid instead of purulent, and culture showed only a few colonies of diphtheroids; it decreased in quantity to less than 1/2 oz. a day. After discharge the patient was symptomless for two months and remains well. The sputum is still mucoid, and is coughed up only with difficulty. She is able to do a full day's work.

Case 2.—A housewife aged 32 was admitted to hospital on Jan. 5, 1945, when 7 months pregnant, complaining of undue shortness of breath on exertion and cough with purulent sputum. She gave a history of pneumonia at the age of 14, since which time she had always had a cough with sputum. For one year she had been breathless on even slight exertion; this became worse during her pregnancy. She had lost her appetite and complained of the foul taste of her sputum. On examination she was cyanosed, and in the chest there were signs of bronchial spasm and coarse rales at both bases, more marked on the left than on the right. Bronchograms revealed bronchiectasis in the left lower lobe. Her sputum contained a varied bacterial flora, with a penicillin-sensitive pneumococcus predominating. She was treated with intratracheal penicillin, 60,000 units a day for 10 days. Her sputum remained copious, but was less purulent and less offensive, and aerobic culture showed a steadily decreasing number of colonies, the final specimen being sterile. One unit of penicillin per c.cm. was present in the sputum 24 hours after injection. Her general condition considerably improved, and she had a normal labour without undue shortness of breath or exacerbation of her pulmonary symptoms.

Case 3.—A gatekeeper aged 59 was admitted to hospital on Oct. 20, 1944, complaining of increasing cough and sputum and loss of appetite for five months before admission. He had had osteomyelitis of the right femur and a right lung abscess in 1940, since which time he had always had a cough, with occasional pain in the right chest and copious foul-smelling sputum. The latter had increased in quantity to 8 to 10 oz. a day, and was so offensive that he had lost his appetite; he had also become very short of breath. On examination he was emaciated and utterly miserable; the only relevant physical signs were at the right base, where there were diminished movement, an impaired percussion note, distant bronchial breathing, and coarse rales. His sputum contained a very varied flora, including a non-haemolytic streptococcus, pneumococci, and species of *Neisseria*, fusiforms, and spirochaetes. Most

of the organisms were sensitive to penicillin. His haemoglobin was 56%. Radiographs showed bronchiectasis of the right lower lobe. He was treated with 50,000 units of penicillin intratracheally each day for 8 days and then 80,000 units for 5 days. There was marked subjective improvement; the volume of sputum was reduced to less than a third of its previous volume and became inoffensive, he began to sleep well, and his appetite returned. The physical signs in his chest, though less well marked, were still present, and his haemoglobin rose to 84%. He again took a considerable interest in life, and looked forward to having a lobectomy performed, which, as a result of the improvement in his general condition, was thought to be a reasonable risk.

Discussion

These three examples illustrate the types of case in which intratracheal penicillin would be of value. An early case was so improved that the patient declined lobectomy, as she felt there was nothing wrong with her. In the second case the patient was enabled to get over the latter months of pregnancy and delivery without any extra difficulty arising from her chest condition. In the third case a patient who was clearly going downhill was rendered fit enough for lobectomy to be considered.

There would appear to be two uses for this form of therapy: (1) to improve the general condition of the patient before lobectomy; (2) to sterilize the bronchial cavities at regular intervals, especially during the winter. It might be used to replace bronchoscopy with suction or the creosote chamber. Intratracheal therapy should be combined with daily postural drainage, and can easily be performed upon an out-patient. It is inevitable that the cavities will become reinfected with pathogenic organisms, and it is too early to say how long they will remain sterile, but in cases in which the predominant pathogen in the cavities is penicillin-sensitive the treatment does provide a means at least of temporary improvement.

Summary

The technique of intratracheal administration of penicillin is described.

Three illustrative cases are reported in which this treatment was beneficial.

We wish to thank Dr. J. D. Fiddes, medical superintendent, and Dr. J. B. Penfold, pathologist, St. Andrew's Hospital, Billericay, for valued co-operation.

REFERENCE

Knott, F. A., and Clark, W. H. (1945). *Lancet*, **1**, 468.

EFFORT SYNDROME IN THE WEST AFRICAN SOLDIER

BY

DERYCK L. H. GODDARD, M.D., M.R.C.P.

Major, formerly R.A.M.C.

There is no reference in the literature to effort syndrome in the West African, nor have I been able to find any paper dealing specifically with this condition in black-skinned people. This paper records 12 cases of effort syndrome in West African soldiers serving with the Royal West African Frontier Force (R.W.A.F.F.), and seen in a general hospital on the Gold Coast between Dec., 1941, and Dec., 1942.

Observations

The signs and symptoms of effort syndrome as tabulated by Wood (1941) were used as a basis for diagnosis, and questions were directed to elicit any of the symptoms not mentioned by the patient. A thorough physical examination was made in each case, and such investigations as examination of the blood for malaria parasites, radiographs of the chest, and erythrocyte sedimentation rates were carried out when necessary in order to exclude a physical cause of the disability.

The symptoms complained of were breathlessness (in all cases), palpitation (in 10 cases), fatigue (9), dizziness, precordial pain, cramps, and sweating (8), headache and frequency of micturition (6), trembling (5), nervousness, insomnia, and paraesthesiae (4), sighs, throbbing in the head, and anorexia (3), flushing, dry mouth, and diarrhoea (1). The symptoms occurred on exercise in all cases and on excitement in four.

Of signs, tremor was present in 7 cases, excessive sweating of axillae or palms (6), nervousness, overacting heart, and resting pulse rate over 100 a minute (5), hyperpnoea or tachypnoea and cold clammy hands (4), asthenic posture (1). Sighing and hyperaesthesia over the site of precordial pain were not noted in any case; flushing cannot be observed in black men. The highest blood pressure recorded was 142/82. The chest expansion, measured at the fourth rib, varied from 3/8 to 2⅜ in., with an average of 1¼ in.; a similar average was obtained in 16 controls, but I have the impression that the West African is a poor thoracic breather and cannot be compared with the European in this respect. A standard of breath-holding for 30 seconds was adopted; six patients failed in this. The average time was 32 seconds, with a minimum of 8 and a maximum of 55 seconds. In 11 controls the average time was 64 seconds, varying between 30 and 110 seconds. I found it difficult to get satisfactory co-operation in this test, but the controls appeared to try harder than the patients, many of the latter breathing before they had any apparent distress or discomfort. An exercise tolerance test, as recommended by the Horder Committee on Effort Syndrome (1940), was carried out. In 8 cases the pulse failed to return to its original rate within one minute after the end of the exercise, and in 3 cases within two minutes. Three patients were distressed after the test.

Case Histories

Case 1.—A Kumasi (Ashanti) Christian, aged 35. Speaks English very poorly. Private in Gold Coast Regiment (G.C.R.). Service 1 year 8 months. Symptoms started 9 months ago in East Africa while doing P.T. Sent to hospital, in which he remained for three months, having 10 injections into the arms and 10 into the buttocks. Had dysentery in E. Africa 2 months before the onset of the present disability. Likes the Army, but "owing to my sickness I want to be discharged and go home." Did heavy work as a farmer in civilian life. Strong and active as a child. Nothing relevant in family history.

Case 2.—A Creole (Sierra Leone) Christian, aged 26. Speaks excellent English. Shorthand-typist before the war. Private in the West African Army Medical Corps (W.A.A.M.C.). Service 1¼ years. Symptoms began 6 months ago in E. Africa during P.T. Admitted to hospital, where he remained in bed for a month with a diagnosis of "rheumatic carditis"; malaria parasites were found in the blood. Has remained well on light duty since discharge from hospital, but on one occasion, when he was obliged to do some heavy work, experienced precordial pain and a sensation as if his chest were being clamped. He now feels that physical work might "humbug" his heart. Volunteered for service in the W.A.A.M.C., where his superior education might be of use, rather than risk conscription at a later date into a combatant unit, for which he did not think himself strong enough. Finds Army life "rough." A keen scholar as a child, being a veritable bookworm. "I always had a notebook in my pocket." Passed the Cambridge School Certificate at the age of 14½. Not popular with other children, who were jealous of his scholastic achievements. Not keen on sport. "Cricket is a decent game, but football is all bullying." Family history: nothing relevant.

Case 3.—An Accra (Ga.) Christian, age doubtful—about 45. Speaks English fairly well. Bus-driver as a civilian. Sapper in W.A. Engineers. Service 2¼ years. Symptoms started 4 months ago while mine-lifting in E. Africa. To hospital for 7 weeks; received 20 injections into arms and buttocks. Had dysentery while in hospital. Was told that he had heart disease and should not do any hard work. Likes the Army, but is not happy in his unit. Did well at school. At the age of 9 cut his foot while playing football, and has never played since, because he thinks it is too dangerous. (West Africans play football unshod.) Reliant on his parents. Family history not obtained.

Case 4.—An Accra (Ga.) Christian, aged 31. Speaks English fairly well. Carpenter in civil life. Corporal in W.A. Engineers. Service 4½ years. Symptoms started 9 months ago during an air raid in E. Africa, and has been unable to do heavy work since then. Likes the Army, but is sure that he cannot carry out his duties in his present health. Strong and active as a child, but would not play football, because "you get wounded plenty." Family history: two nephews (twins) have fits; otherwise nothing relevant.

Case 5.—An Ashanti Christian, aged 25. Speaks English well. Lorry driver as a civilian. Private in G.C.R. Service 2 years 4 months. History of 1 year 8 months. Onset of symptoms in E. Africa during P.T. In hospital for 6 weeks. He was told that he should never do heavy work again. Likes the Army, except that his chest troubles him. Did well at school ("I was always clean and smart"); popular with other children, but especially with the clever ones. Had never avoided physical exertion until onset of present disability. Nothing relevant in family history.

Case 6.—An avatime Christian, aged 22. Speaks English well. Lorry-driver and farmer before military service. Private in W.A.A.M.C. Two years' service. History of 13 months. Symptoms started while serving in E. Africa. Intelligent and active as a child. Does not enjoy football in the Army because "the other side try to injure you." While in E. Africa was much upset by the news of his father's death, the patient being the eldest son, and so responsible for the rest of the family.

Case 7.—An Akim Abuakwa (Fanti) Christian, aged 23. Speaks very little English. Civil occupation, mason. Private in G.C.R. Three years' service. Symptoms first occurred while on the march in E. Africa 9 months ago. To hospital for a month. Has been told by doctors on two occasions that he should not do heavy work again. Has done only light duty since returning to the Gold Coast 2 months ago. Healthy and active as a child, but not especially clever. No relevant family history.

Case 8.—A Kumasi (Ashanti) Christian, aged 28. Speaks English well. Grocer before the war. Driver in W.A. Army Service Corps. Service 2 years 1 month. Nine years' history. Symptoms started while at school, but lasted only a few weeks, being cured by a native doctor. Left school six years ago, and did light work in his father's grocery store. Joined the Army and remained well until 18 months ago, when the symptoms recurred after he had been in E. Africa for 3 months. Attended hospital for 10 months as in-patient or out-patient and received about 20 intravenous injections. Informed that his heart was the cause of the trouble. Did no further heavy work in E. Africa. Has been on full duty since return to Gold Coast 3 months ago. Patient was timid and retiring as a child. Would not stand up to other children, but reported any bullying to the teacher "because we were forbidden to fight." Similarly, he was once assaulted and robbed, but called for his father instead of defending himself, "for the man was bigger than I." Was very reliant on his parents. History of abnormality of behaviour in one brother and two distant relatives.

Case 9.—A Twi Christian, aged 35. Speaks English fairly well. Blacksmith. Sapper in W.A. Engineers. Service 2 years. Disability began 12 months ago during service in E. Africa. In hospital for 6 months, but with no improvement. Had 17 intramuscular and intravenous injections. Told by his doctor that his heart and chest were weak. Symptoms have persisted since return to Gold Coast with diagnosis of "V.D.H. and cardiac enlargement." Likes the Army, "but my sickness troubles me too much." Schooling interfered with by ill-health and persistent pain in the ribs. Would not play games at school because they were not properly controlled and he tired too quickly. Avoided quarrels with other children. "It is my habit not to fight; I was born like that." Thirteen years ago drank palm wine in which ju-ju medicine had been placed; he became "nearly mad," and would shout and sing in the street. Cured by fetish priest. Doubtful history of pulmonary tuberculosis in two brothers. (Screening of this patient's chest showed no abnormality in lungs or cardiac shadow.)

Case 10.—An Osu (Ga.) Christian, aged 29. Speaks a little English. Bus-driver as a civilian. Driver in W.A.A.S.C. Service 2½ years. Symptoms started 8 years ago, but stopped when he joined the Army. They recurred 6 months ago, after a lorry accident. Improvement followed treatment by a native doctor, but the disability had become worse again. Dominated by father, who did not like him to mix with other people. Not very clever at school. Did not play football for fear of injury; he used to run occasionally, but not much, because he never won. History of insanity in grandmother.

Case 11.—An Anlo (Ewe) Christian, aged 25. Speaks a little English. Fisherman in civil life. Private in W.A.A.S.C. Service 4 months. Had symptoms for a short time before joining the Army, but they recurred 3 months ago. Is afraid that he may die. Likes the Army, but "my sickness hinders me." Education interfered with by ill-health, chiefly abdominal trouble. Avoided exertion because it would hurt his heart. History of insanity in uncle.

Case 12.—A Krobo (Ga.) Christian, aged 29. Speaks English well. Lorry-driver as a civilian. Signalman in W.A. Corps of Signals. Service 2 years. Symptoms for 16 months. In hospital a year ago for 6 weeks; records of this admission not available. Strong and active as a child. Clever scholar. Nothing relevant in family history.

Discussion

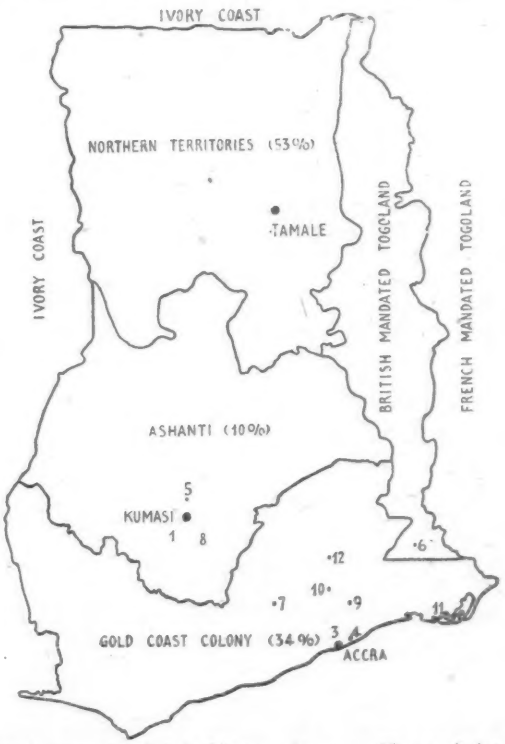
The difficulties facing the physician who attempts a psychiatric investigation of the West African native are very great, and no attempt has been made to diagnose the psychological abnormalities underlying these cases. It will be noted that patients Nos. 2, 4, 8, 9, 10, and 11 were disinclined to exertion from childhood, especially with regard to competitive sport. Two patients (Cases 2 and 8) did light work as civilians, but sedentary occupations are few in West Africa. The first 9 patients had served in the Abyssinian campaign in 1940–1. Factors which may have initiated or fostered the patients' disabilities are:

(*a*) *Acute Fear.*—The symptoms in Case 3 started immediately after the man had tripped over and fallen on a mined road, and in Case 4 after the patient had had to run some distance and dive into a slit trench, having been caught unawares by an enemy airplane.

(*b*) *Infection.*—Case 2 had malaria parasites in the blood on admission to hospital in E. Africa. Case 1 had dysentery about 2 months before the onset of symptoms, and Case 3 a week after admission to hospital in E. Africa.

(*c*) *Encouragement of Patient's Conviction of Physical Disability.*—Cases 1, 2, 3, 5, 7, 8, 9, and 12 had been retained in hospital for periods varying from one to six months. Cases 1, 3, and 9 received many injections, which were almost certainly antispirochaetal. Syphilis occurs in the West African, but yaws is universal. (Kahn tests were positive in four cases in this series.) Patients Nos. 2 and 9 were told that their hearts were affected, and No. 5 that he would never be able to do hard work again; No. 8 stated that his heart had been examined frequently, and that he had been told it was beating too fast. Every patient made spontaneous mention of his heart during the interview or examination.

In order to illustrate the most striking feature of this investigation a very brief account of the geography of the Gold Coast is necessary. The country forms a rough rectangle, about 350 by 190 miles, with its long axis running from north to south, and its base resting on the Gulf of Guinea. It is divided into three parts—the Gold Coast Colony in the south, the Northern Territories (N.T.) in the interior to the north, and Ashanti between the two. British Mandated Togoland skirts the eastern flank of the country. The West African soldiers, recruited in the Gold Coast and serving with the R.W.A.F.F. in 1941–2, were supplied by the three main districts as follows: Northern Territories, 53%; Ashanti, 10%; Gold Coast Colony, 34%; miscellaneous, 3%. The accompanying map shows where the patients in this series lived. It will be observed that, with the exception of Case 2, all the patients hailed from the southern half of the country, and that the Northern Territories, supplying 53% of the native strength, did not provide a single case.



Sketch map showing incidence of cases. The capital towns are marked. The figures in brackets represent percentage of troops serving with R.W.A.F.F. (Gold Coast) in 1941–2. Case Nos. indicate where each patient lived. Case 2 came from Freetown, Sierra Leone.

What is the explanation of the preponderance of cases from the Colony and the apparent immunity of the N.T. man? It is provided, I suggest, in the lower standard of mentality found in the people of the N.T. compared with that of the Colony natives. Not only are the latter a more intelligent people

inherently but their mental outlook has been, and is being, changed by contact with Europeans, and there is evidence that this Europeanization is an important factor in determining the liability of the West African to suffer from effort syndrome. European coastal trading posts were established nearly 500 years ago by the Portuguese. European influence was at first confined to the vicinity of such posts, but it gradually spread, and by the Bond of 1844 British "power and jurisdiction" were accepted by many of the tribes living in what is now known as the Colony. To-day a relatively large proportion, although still a minority, of the people in the Colony are European in their outlook; their mode of living and thinking has been affected by close contact with Europeans, and by the radio, cinemas, newspapers, and so on. It is these southern tribes which supply the African lawyers, priests, and doctors, and "black-coated" workers such as teachers, clerks, and accountants. Our relations with Ashanti were of an interrupted and sanguinary nature until, after the Siege of Kumasi, Ashanti became a British colony in 1901, since when European influence has been steadily increasing. It is noteworthy that of the three patients from Ashanti two lived in Kumasi, the capital town and administrative centre, while the third lived only 10 miles north of the town. The Northern Territories became a British protectorate in 1901, but this change has had comparatively little effect on the life of the native.

All the patients under review showed evidence of their contact with Europeans. Thus they all spoke English—only one so poorly that an interpreter was required throughout the interview; but I would estimate that in a general ward an interpreter would be required in at least half the cases if a full history was to be obtained. Further, all these patients were Christians; in a general surgical ward of 40 beds 20 patients were Christians, 15 pagans, and 5 Mohammedans. Huxley (1944), surveying conditions in British West Africa, states: "Not more than one child in about ten gets any education at all," yet only one of the patients had received no schooling. On the whole their intelligence was well above that of the average native of the Gold Coast. I had the opportunity of observing Case 2, the Creole from Sierra Leone, who was posted to the hospital as a nursing orderly, and I found him to be perhaps the most intelligent African in the unit, being secretary to a study circle formed by some of the English-speaking personnel.

The response of the individual to mental conflict and such emotions as anxiety and fear, though depending to a great extent on his innate personality, is also affected by his upbringing, education, and experiences. It is generally accepted that a crude solution to mental conflict—as, for instance, conversion hysteria—is found more often in the less intelligent, while in the more intelligent occur such reactions as effort syndrome, which are subtler and less obviously related to the causative emotion. In the last war Rivers (1918) pointed out that conversion hysteria was more common in the "other ranks" and effort syndrome in the officers, and he suggested that one possible cause may be found in the difference of education, the officer being more widely educated and his mental life more complex and varied. I think it is reasonable to apply Rivers's hypothesis to the Gold Coast West African as between Colony man and N.T. man, taking into consideration the generally lower plane of intellect found in the West African. The patients in this series have, on the whole, been much influenced by "white" civilization. Their sphere of thought has been widened, and their ability to reason increased by knowledge and experience, this process being, of course, accompanied by a repression of the cruder instincts through a stricter mental censorship. The N.T. man still thinks simply, his powers of reasoning are limited, and he is much influenced by suggestion. During the period under review many cases of conversion hysteria were seen in the hospital; I regret that I have no figures or notes available, but I feel safe in stating that the majority of these cases were N.T. men. Certainly I found the language difficulty a great hindrance in getting *en rapport* with these cases, in contrast to the comparative ease with which one conversed with the patients with effort syndrome.

Summary

Twelve cases of effort syndrome in West African soldiers are recorded, and a summary of the case histories is given. Some of the possible predisposing causes are noted. It is suggested that the influence of European civilization is an important factor in determining the incidence of effort syndrome in the West African, and evidence is offered in support of this suggestion.

My thanks are due to Prof. Sir Francis Fraser, and to Dr. G. L. Alexander of the Colonial Medical Service, for criticism and advice; to Lieut.-Col. R. R. Bomford, R.A.M.C., who encouraged me to undertake this investigation; to Major T. Hodgson, M.B.E., R.W.A.F.F., for the figures relating to the enlistment of recruits; and to the Director-General, Army Medical Services, for permission to publish this paper.

REFERENCES

Horder Committee on Effort Syndrome (1940). *British Medical Journal*, **2**, 201.
Huxley, J. (1944). *Times*, June 7, p. 5.
Rivers, W. H. R. (1918). *Ment. Hyg.*, **2**, 513.
Wood, P. (1941). *British Medical Journal*, **1**, 767.

Medical Memoranda

Confluent Smallpox Treated with Penicillin

The use of penicillin in the case recorded below was a logical attempt to minimize secondary infection of the very extensive lesions of a severe confluent smallpox. The view that the patient had everything to gain and nothing to lose was encouraged by Prof. J. W. S. Blacklock, of Glasgow Royal Infirmary, to whom I am indebted for the generous supply of penicillin. The diagnosis was one of great simplicity, and the prognosis was given as the gravest possible by Sir Alexander Macgregor, medical officer of health, Glasgow, Dr. R. J. Peters, deputy medical officer of health, and Dr. J. Watson, medical superintendent, Robroyston Hospital, Glasgow.

CASE HISTORY

The patient was an unvaccinated merchant seaman aged 38. He presumably contracted smallpox in a North African port, but the disease did not develop until he was at sea, bound for home. In the morning of March 26 he shivered repeatedly, and complained of headache, pains in the limbs, and sore throat. He was isolated in the ship's hospital, there being considerable fever and constitutional upset. The eruption began to appear on the forehead late on the 28th. He was removed to Robroyston Auxiliary Hospital on March 30, shortly after the ship reached port.

He was afebrile when seen on admission, and seemed only moderately ill. The eruption was very pronounced over the whole body. On the face it was made up of coalescing vesicles of large size. The scalp was markedly involved, though confluence was not so complete. There were numerous vesicles on the mouth, palate, and gums, especially so where teeth had been removed. Some degree of laryngitis could safely be attributed to lesions in the respiratory passages. On the trunk the rash was profuse and was papular and papulo-vesicular. On the wrists and hands it was practically confluent, particularly over a scar on the left leg. The trunk had very numerous lesions, there being many even on sites usually free of eruption. Of the lesions in general it can be said that the areolae were marked on the head and neck and less so elsewhere.

It was expected that a stormy illness would follow a rash of such profusion, and accordingly penicillin was given by intramuscular injection, it being feared that delirium might interfere with a continuous intramuscular drip. He was given 20,000 units of calcium penicillin early on March 31, by which time he was again sharply febrile. The injections were repeated every fourth hour, and later, as the rash matured, every third hour. By April 4 it was obvious that the illness was not likely to prove as severe as had been expected, and, the patient being fully co-operative, a continuous intramuscular drip was started, which gave him considerable relief. He received 100,000 units daily till April 7, by which date he was free of all constitutional upset and in fact convalescent, it being the 13th day since the onset. In all he received 800,000 units of penicillin. The highest temperature was 101.8° F., recorded on the 8th day of illness. Thereafter there was a steady fall by lysis. At no time was there any feature of clinical interest in the heart, lungs, or urine.

COMMENT

The evolution of the rash presented some points of interest. On the face it followed a fairly classical course, becoming a wholly confluent pustular mask. Crusting and desiccation were, however, pronounced by the 7th day of efflorescence, or the 9th day of his illness. Thereafter the skin of the face cleared rapidly. Facial oedema lasted no more than 24 hours, and was never very severe. At the time of his discharge, on April 23, there was no evidence of excess granulation tissue, and pitting promised to be minimal. On the trunk and limbs two features were noticeable: most of the lesions failed to increase in size after starting penicillin therapy, and most of them crusted, without going on to pustulation, on or about the 6th day after the eruption first appeared. Desquamation was complete everywhere except on the palms and soles by the 13th day of the eruption, or the 15th day after the onset of the illness.

It is not suggested that penicillin alone was responsible for the happy issue. It is well recognized that the immunity responses may so alter that the outcome of such an illness may well transpire to be other than that first envisaged. Nevertheless I am convinced that penicillin in this instance achieved all that was expected of it, whereas in comparable illnesses of previous outbreaks the intensive use of sulphonamides failed to prevent several fatalities. With the probability of further virulent smallpox reaching our ports, it may well fall to others to confirm the impressions gained from the treatment of this patient.

M. A. FOULIS, M.D.,
Senior Assistant Physician and Surgeon, and Deputy Superintendent.

Robroyston Auxiliary Hospital, Millerston.

Empyema complicating a Pneumothorax treated with Penicillin

The following case is interesting in that a pneumothorax occurred as the result of swallowing a safety-pin and a cure was effected by the use of penicillin.

A girl aged 2 years was admitted to hospital on Dec. 17, 1944, having swallowed a safety-pin, which lay point upwards opposite thoracic vertebrae 6 to 8. The pin was removed by a rotatory movement (in the absence of a pin-closer), and as injury to the oesophagus was suspected the patient was started on a course of sulphathiazole.

A radiograph taken on Dec. 18 showed a right-sided pneumothorax. Nothing except the sulphonamide was given by mouth from Dec. 19 to 22, and the pneumothorax did not increase in size after Dec. 20. The patient now appeared well, but on Dec. 23 there was a dullness at the right base, and a radiograph taken on Dec. 27 showed a small pleural effusion. On Dec. 30 a few c.cm. of thin pus was aspirated, and aspirations were repeated every other day until Jan. 4, 1945, when 50 c.cm. of thick pus was obtained. Culture of this pus showed pneumococci, which were penicillin-sensitive. The temperature ranged between 98° and 100° until on Jan. 1 it reached 101°. On Jan. 2 sulphathiazole was discontinued.

Penicillin therapy was started on Jan. 4, when 60,000 units in 60 c.cm. of normal saline were injected into the right pleural cavity. The injection was repeated on Jan. 6 and 8, and after the third injection the temperature remained normal. 40 c.cm. of thick pus was aspirated on Jan. 11, and a fourth injection was given on that day. This pus and 50 c.cm. aspirated on Jan. 17 were sterile, so that the fourth injection may have been unnecessary. Subsequent radiographs showed gradual expansion of the lung but persistent opacity at the right base, which was interpreted as thickened pleura, as no pus was aspirated after Jan. 17.

The patient was discharged on March 17. On March 27, when seen at the out-patient department, she was well, and a radiograph showed complete expansion of the right lung with a small amount of pleural thickening at the parietes.

Hull. L. A. QUIRK, M.D.

Volvulus of Caecum with Reversed Rotation of Mid-gut

Volvulus of the caecum associated with reversed rotation of the midgut is a rare condition, so that details of the following case may be of interest.

CASE REPORT

A woman aged 59 was admitted to hospital on Sept. 8, 1943, and stated that twenty-four hours earlier she had begun to have lower abdominal colicky pains, and that her abdomen had become larger. She had vomited several times and had not passed faeces or flatus since the onset of the pain. One week before the present attack she had experienced a similar pain which had lasted for two hours.

On examination the patient was a thin, frail woman in fairly good general condition. The abdomen was distended and tympanitic, the distension being chiefly central abdominal. Audible peristalsis was present and rectal examination revealed no abnormality. A Ryle's tube was passed into the stomach, and the fluid withdrawn was clear and bile-stained. A diagnosis of large-bowel obstruction was made and operation performed.

At operation under a spinal analgesic a right paramedian incision was made and the following condition found: a volvulus of the caecum, first part of the ascending colon, and lower ileum was present, the volvulus consisting of two turns about its axis. The greatly distended caecum was lying in the centre of the abdominal cavity. When the volvulus had been untwisted it was found that the caecum and ascending colon were mobile and had a definite mesentery. The transverse colon just distal to the hepatic flexure disappeared beneath the mesentery of the small intestine, and reappeared again on the left side. Drainage of the caecum was performed by means of a tube inserted through the terminal ileum, the tube being brought out through a small gridiron incision in the right iliac fossa.

Progress.—The ileostomy tube was removed one week later, and the ileostomy rapidly closed. The patient was discharged from hospital three weeks after operation.

Crumpsall Hospital, Manchester. NORMAN G. GODFREY, F.R.C.S.

Reviews

A REVOLUTIONARY SCHEME OF LOCAL GOVERNMENT

Physician, Heal Thyself. A Study of Needs and Means. By G. Scott Williamson, M.D. (Pp. 133. 5s.) London: Faber and Faber.

The title of this book gives little clue to its contents. It is a plea for a revolutionary scheme of local government which Dr. Scott Williamson calls "Liberal Socialism," defined as "the government of society by the individual for the individual." He thinks he can reconcile the claims of the community with those of the individual. He gives a clear and dogmatic exposition of this thesis applied in detail to our medical services. The author is a convinced believer in the rights of the individual, which have been neglected by what he calls "monopoly socialism"—government by bureaucracy. Medical services should be primarily local and directed not centrally but by the residents in the area, who could be trusted, if the means were provided, to see that good medical service would be forthcoming. His experience as medical director of the Peckham Pioneer Clinic has inspired many suggestions which seem reasonable, however Utopian they may appear at first. The overriding duty of the doctor is "to protect his patient," as his "counsel for the defence"; therefore the patient must have his own doctor, and not the State's doctor. Local clinical centres are essential, and all practice must be centred there. They must be "fully equipped with the tools and services required for efficient diagnosis and treatment"; staffed by general practitioners, who are the keystone of the whole service; the consultants and specialists are advisers used by the doctor in charge of the patient. Great stress is laid on a *free* transportation service for patients to the centre, to their homes or employment, and to hospital when necessary. So much of the time of doctor and patient might be saved by this as would be equivalent to adding 1/2 or 1/3 doctors to the list, and so enable the new service to start at once. To detect the minor ailments, whose importance he cannot stress too much, all members of the family should be overhauled periodically as at Peckham. These centres must have district hospitals, the beds being under the control of the doctors who send in the patients. "Their own doctor must see them through every illness because only he can assess the success of any treatment." "The sick person is the doctor's *patient* and the specialist's *case*." The specialist would be interested, if perhaps annoyed, by what Dr. Williamson has to say about his real status—viz., that of a technical adviser, on certain aspects of a *case*, to the doctor who is in charge of the *patient*. The future consultants and teachers should be "super-general practitioners" chosen from among those who have "succeeded in, and not retreated from, general practice." They must be elected by the men among whom they work. They would act as teachers and as executive officers, seeing that the instructions of the patient's own doctor are carried out. Patients must be paid their full wages while sick, their places being taken by apprentices and others who are being trained to do that particular work; trade unions should be responsible for this supply. He holds it to be as logical to pay the workers essential for the community, and to keep their jobs open while sick, as it is to do the same for civil and other servants of the Crown. The centres and hospitals should be under the control of lay committees elected by the potential patients in the area, as being the only people who can say whether the service is satisfactory or not. The role of the central Government is to collect the insurance contributions. It is merely the agent of the individual subscriber, and should no more be allowed to spend his money than his bank would be allowed to spend his savings. Subscriptions to the service should be based not on a flat rate but according to means, and these can be ascertained by dividing the income of the family by the number of dependants. "The rich must not be allowed to contract out of any public service." The local share of the money collected must be handed over to the local committees to spend according to the needs of the locality. The patient will pay his own doctor by drawing a cheque on his "local medical bank." He will no longer be a "panel patient" but "a patient with a cheque book." A suitable way

for finding out what the doctors in total should receive would be to take their earnings in a year in which they did most work. As to the distribution of the money among the doctors the author is not too clear, for here he strikes the problem of how to distribute a limited pool equitably, and this has defeated all who have tried to solve it. There are patients who are too anxious to be visited and doctors who are too anxious to oblige. This must be met by surcharging the doctors with any excess over the mean, and thus a doctor "whose anxiety exceeded the mean would pay for his idiosyncrasy."

This is a bald outline of new and very interesting proposals undoubtedly attractive to many, both patients and doctors. But it all seems too easy—though the author has no doubt about it. It would certainly be opposed by the State Socialists and by the bureaucracy. The author's general philosophy of "Liberal Socialism" is open to criticism at many points. As one example, he says that "Nature hates dying as fiercely as she loves living." It could just as easily be argued that Nature is quite indifferent and that dying is as much a part of Nature as living.

This refreshing book can be cordially recommended to all interested in the future of medical service. Over and over again Dr. Scott Williamson emphasizes that he approaches this problem on the theory that the primary interest is the *individual* patient. He has no use for schemes whose main solicitude seems to be the community.

A. C.

ENDOCRINOLOGY OF REPRODUCTION

Female Endocrinology, including Sections on the Male. By Jacob Hoffman, M.D. (Pp. 788; illustrated. 60s.) Philadelphia and London: W. B. Saunders Company. 1944.

It has frequently been observed by reviewers that textbooks of general endocrinology have suffered invariably from the size of the subject, which is so large that it is almost impossible for one man to tackle it with any equality of standard. In many such books one branch of the subject is often excellently described, while others are neglected or treated in a manner which is mediocre or frankly bad. Dr. Hoffman's book is the first exception to this rule which we have met. It is true that he does not claim to treat of general endocrinology, but only of the reproductive aspects, which badly needed a modern textbook. Nevertheless, this is in fact a general textbook, for the author recognizes that the endocrine glands are so intricately linked that it is impossible to treat of one or two without instilling at the beginning a working knowledge of glandular physiology and pathology in general, and stressing throughout the influence of other glands. Thus it comes about that though in this book the spotlight is on the endocrinology of reproduction, the rest of the stage is well lit also.

The surefootedness with which Dr. Hoffman picks his way through the tangled undergrowth of stout brushwood and rotten boughs could be possible only for one whose general knowledge of his subject is great. To read Dr. Hoffman on the endocrinology of sex is to be convinced that he could with equal ease have chosen any other path and have written a textbook equally good with the emphasis shifted to other glands. It is the clear critical sense with which the author discards the rotten wood, and holds fast to that which is good, which gives the book its singular value. The bibliographies are short. Almost equally valuable is the breadth of mind with which he avoids the error of too much "hormone consciousness," seeing endocrine disorder always against the background of general medicine, bearing in mind especially the constitutional, psychological, and neurological factors which lie behind the bald "diagnosis" of too much or too little activity in this gland or that.

In England at least (and we have no reason to believe that it is different elsewhere) the practice of clinical endocrinology has too often been a hit-and-miss business, based on no sound foundation of experiment, over-optimistic and sometimes actively harmful. Worthless mixtures of inactive tissue extracts are still administered, with no benefit to anyone but the manufacturers, by doctors who have seen them "well spoken of in the advertisements." Potent preparations, especially of oestrogens, are injected in a mood of cheery optimism without even the preliminary precaution of a diagnosis. Were Dr. Hoffman's decently critical work on every doctor's desk the sufferers from endocrine disorder would suffer less and some of the hormone mongers would be the poorer.

AEROSOLS

Aerosols in Theory and Practice. By Archibald C. Lock, M.I.E.E. (Pp. 40. 5s.) London: Phantosol Products, Ltd.

An aerosol may be roughly defined as a suspension in air of fluid particles so small that they do not wet a solid surface with which they come in contact. It is now well known that suspension of certain disinfectants in this form is, under certain conditions, a remarkably efficient method of disinfecting air. Whether aerosols of any kind will ultimately be preferred to the use of glycol vapours for this purpose has yet to be seen. Those interested particularly in the mechanics and physics of this subject will find much information in a booklet entitled *Aerosols in Theory and Practice* by Archibald C. Lock, the technical and research manager of Phantosol Products, Ltd., who manufacture apparatus for producing aerosols. He deals mainly with the theory of the subject, and the conditions necessary for efficient application. There is also a section on the use of aerosols as insecticides.

Notes on Books

For the fourth edition of *Medicine for Nurses* (W. H. Smith and Son, Greengate Street, Stafford, or through any branches; 2s. 6d.) Dr. W. GORDON SEARS has carried out many minor alterations while retaining its general form. Cross-references to the author's *Materia Medica for Nurses* are not altogether an advantage, and in general there still seems too much detail for the average nurse. Accounts of the pathology of pneumonia (p. 241) or of the differential diagnosis between diabetic coma and hypoglycaemic coma (p. 366) seem beyond the scope of medical nursing. Dr. Sears might well assert that such knowledge is demanded by the syllabus, and so long as the demands of the G.N.C. remain so complicated this book will be of the greatest value.

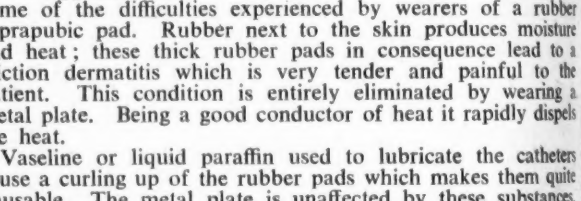
Preparations and Appliances

A METAL SUPRAPUBIC PLATE

Dr. W. PEARCE writes from Moortown, Leeds:

The appliance shown in the figure is designed to overcome some of the difficulties experienced by wearers of a rubber suprapubic pad. Rubber next to the skin produces moisture and heat; these thick rubber pads in consequence lead to a friction dermatitis which is very tender and painful to the patient. This condition is entirely eliminated by wearing a metal plate. Being a good conductor of heat it rapidly dispels the heat.

Vaseline or liquid paraffin used to lubricate the catheters cause a curling up of the rubber pads which makes them quite unusable. The metal plate is unaffected by these substances. It fits snugly to the abdomen, is not bulky, and causes no



bulging of the wearer's trousers. Because of its good fitting qualities granulation tissue around the suprapubic osteum is reduced to a minimum.

The appliance consists of: a flat metal plate 3¾ in. long and 1½ in. wide, fitted with two studs to take a belt. This plate can be made of copper and chrome-plated, and being malleable can be moulded where necessary to the wearer's abdomen. In the centre is a hole to take a size 18 English gauge standard rubber catheter. This hole is suitably bored so that the catheter is a fairly tight fit. The belt is of webbing of suitable width, lined inside with chamois leather so that it will be comfortable and prevent trouble from friction. It has been found an advantage to have two buckles, one on each side of the appliance over each iliac crest.

This appliance has been made for me by Messrs. Chas. F. Thackray Ltd., of Park Street, Leeds, to whom I am indebted for the able manner in which they have carried out my instructions.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JUNE 30 1945

PROGRESS IN THE PSYCHIATRY OF WAR

At this stage in the war, during which we have seen so many great strides taken in both medicine and surgery, it is pertinent to ask what have been the advances made by psychiatry. Development has been as great in this as in other fields; and when we take into account how much less is known of the working of the mind than of the body the proportionate advance that has been made is even greater. There is no need to mention here the progress in treatment of the psychoses, in neuropathology, endocrinology, electro-encephalography, and along many other lines, to which an interesting special number of the *Journal of Mental Science*[1] was recently devoted. The impetus of war experiences has made itself principally felt in the study of personality, normal and abnormal, and of the neuroses. The stresses of war tend to provoke a neurotic type of breakdown, and during this war, as in the last, there has been no increase in the incidence of the psychoses. In a careful study Aubrey Lewis[2] has shown that among civilians the incidence of the neuroses has been surprisingly low—lower than in the Forces, and perhaps little greater than in days of peace. The reason for this is not clear, but it may be related to the end of unemployment, better standards of nutrition, and the provision of a real aim in life. Compared with the men and women in the Forces the civilian has retained liberty of action, allowing him to deal in his own way with the stresses of enemy action.

Numerous studies[3-7] have contributed to our knowledge of the clinical features of neurotic breakdown. All observers agree that there are symptomatic differences between the neuroses of the last war and this. In recent years anxiety neuroses and reactive depressive states have predominated, whereas in the last war the commonest neurosis was conversion hysteria, and anxiety states were principally confined to officers. The same observation has been made in Germany, where it was attributed to the National Socialist ideology.[8] In this country the difference has been attributed to a generally higher standard of education of the public; but it may also be the result of a higher standard of education among medical officers, who are now prepared to admit that a man may be ill with anxiety, and no longer require that he should be hysterically blind, deaf, or paralysed before admitting that the mind may react harmfully on the body. "Disordered action of the heart"—a favourite diagnosis in the last war—has given place to "effort syndrome"; and now that that has been shown by Paul Wood,[9] Lewis,[10] M. Jones,[11] and others to be in every respect the equivalent of an anxiety neurosis it too has lost favour and has become a rare diagnosis. No longer do we talk of "shell shock": the organic approach has given place to such a preference for psychological interpretation that, with one exception (Anderson[12]), there have been no descriptions of the abnormal neuropsychiatric states that certainly arise from blast injuries. But such states as the result of head injury have been studied very closely, as appears from the recent review by E. Guttman.[13] At a varying time after the injury a syndrome of headache, giddiness, and nervous instability (Symonds[14]) is likely to emerge, particularly in the elderly and the neurotically predisposed. These symptoms tend to come and go in a way closely related to circumstances, and may even appear to be hysterical in nature; but the importance of the organic substratum is not now doubted.

Bodily changes of a reversible physiological kind may also help to bring on neurotic syndromes, especially in the acuter war neuroses, as has been emphasized by Sargant.[15] Many acute anxious and hysterical syndromes, apt to arise in men exposed to heavy bombing and shelling, do not appear before there has been physical exhaustion by loss of weight and lack of sleep. Treatment by securing some days of sleep and building up the general physical state with abundant food and doses of insulin has proved very successful. Prophylactic sedation may also be of value in saving the man in the line who has begun to show signs of wear.[16-18] The main external causes of breakdown in battle are, however, psychological strain and tension. Symonds[19] has shown that in aircraft crews the effects of anoxia, of acceleration, and of decompression are not so important as the emotional tension resulting from the prolonged exercise of courage. Lord Moran[20] has emphasized the same point: courage is a capital account, on which big and repeated drafts can be made only at the risk of bankruptcy. Symonds[21] points out that there is another side: a man may become conditioned to the stimuli which arouse fear in the tyro, so that in him they lack their usual effect. Symonds has gone some way to interpreting these effects in the light of the interplay of excitatory and inhibitory mechanisms in the C.N.S. The emotion of fear is a normal one, and the stresses of war are such as to have their effect on normal men, who can thereby become neurotic. There is, however, much individual variation in susceptibility to stress. According to the Slaters[22] men vary in the degree to which they are predisposed to breakdown in much the same way as they vary in height or intelligence. Big deviations from the average are rarer than smaller ones; and men who are very short or very panicky, or on the other hand are tall or immune to anxiety, are rare in proportion to the degree to which they show these characteristics. These quantitative individual differences may well be

[1] *J. ment. Sci.*, 1944, **90**. Special Number.
[2] *Lancet*, 1942, **2**, 175.
[3] Curran, D., and Mallinson, W. P., *British Medical Journal*, 1941, **1**, 305.
[4] Cooper, E. L., and Sinclair, A. J. M., *Med. J. Austral.*, 1942, **2**, 73.
[5] Love, H. R., ibid., p. 137.
[6] Slater, E., *J. Neurol. Psychiat.*, 1943, n.s., **6**, 1.
[7] Torrie, A., *Lancet*, 1944, **1**, 139.
[8] Störring, G., *Bull. War Med.*, 1942, **3**, 33.
[9] *British Medical Journal*, 1941, **1**, 767, 805, 845.
[10] *Proc. roy. Soc. Med.*, 1941, **34**, 533.
[11] *Lancet*, 1941, **1**, 813.
[12] *J. ment. Sci.*, 1942, **88**, 328.
[13] Ibid., 1944, **90**, 328.
[14] *Injuries to the Skull and Spinal Cord*, Brock, S., 1940, p. 69, Baltimore.
[15] *Lancet*, 1941, **2**, 212.
[16] Sargant, W., *British Medical Journal*, 1942, **2**, 574.
[17] Grinker, R. R., and Spiegel, J. P., not yet published in unrestricted form.
[18] Heath, R. G., and Sherman, S. H., *Amer. J. Psychiat.*, 1944, **101**, 355.
[19] *British Medical Journal*, 1943, **2**, 703, 740.
[20] *The Anatomy of Courage*, 1945, London.
[21] *Lancet*, 1943, **2**, 785.
[22] *J. Neurol. Neurosurg. Psychiat.*, 1944, n.s., **7**, 49.

determined in part by heredity. Differences in the type of neurotic response are associated with differences in bodily build. W. L. Rees and Eysenck[23 24] have found that the broadly built and sturdy are more likely than others to show hysterical reactions, while the relatively tall and narrow are more prone to anxiety reactions and effort syndrome.

From the point of view of the armed Forces the neurotically predisposed have to be weeded out from combatant duty. This is but one of the problems that face departments for selection of personnel. Men have also to be chosen for the occupations that will suit them best, and the best men have to be chosen for these occupations by a system of priorities. All duties in the Forces tend to become more and more specialized, and the round peg is less likely to break in a round than in a square hole. The work done along these lines is still secret history, but considerable success has been attained.[25 26] Perhaps the most important part of prophylaxis is played by good training and the maintenance of corporate morale. However, even here the doctor can help (Spiegel[27]). Once a man has begun to show the first signs of breakdown he must be treated as rapidly as possible. Quite a different type of psychiatric organization has accordingly been built up in this war from that available in the last. Treatment has been predominantly in units near the front line instead of far away at the base. Apart from the physical methods already mentioned, abreactive techniques such as narco-analysis[28-31] have proved valuable. While reduced to a semihypnotic state by barbiturates or ether the man is forced to re-live the frightening experience which precipitated breakdown; recovery of lost memories, disappearance of panic states, and abolition of battle dreams may be obtained with little demand on the doctor's time. It seems that these traumatic neuroses are not entirely inaccessible to psychoanalysis,[32] but owing to the size of the problem short-cut methods have to be employed. The need for economy of time has led to group psychotherapy,[33] in which large numbers of men may at the same time be taken over their problems, so many of which are held in common. The acceptance by one man of a reasonable explanation has its effect on all the others. When the psychiatric history of the war comes to be written it will make a fascinating chapter and be full of lessons for the psychiatry of peace.

CHEMICAL DISINFECTION OF THE AIR

The war which brought into being underground communal dwellings for civilians and overcrowded training camps for Service men and women has given a great impetus to studies on the mode of spread of respiratory infections and on methods for their control. The older conception that respiratory diseases are spread only by direct droplet infection requiring close contact has given way to the view, supported by an increasing volume of evidence, that infected dust and droplet nuclei which carry the infecting agents a considerable distance from their source are also important vehicles. In other words, air, like water, can be polluted bacterially as well as chemically, and in any inhabited intramural environment "respiratory" infections may be acquired without direct contact with a human reservoir. The risk will be greatest where the load of infection is heavy, due either to a high proportion of carriers or to overcrowding; or where the community at risk contains a large number of susceptibles. Thus, hospitals for infectious diseases, children's wards, schools, barracks, transport vehicles, and places of assembly will be the main depots for the dissemination of air-borne infection, and practicable methods of control will have to be applied at these focal points if the incidence of respiratory infections is to be materially reduced.

Methods that have already been devised and tested in the laboratory are dust suppression by oiling floors and fabrics, and disinfection of the air by ultra-violet light or by special chemical disinfectants atomized into the air. These methods are now being tested under field conditions, and only this practical experience will tell us what will be their respective spheres of influence. The likelihood is that they will prove complementary to each other, particularly as both physical and chemical aerial antiseptics lose much of their efficacy in the presence of dust. Evidence that oiling of floors and bed-linen[1] and the use of ultra-violet light[2] are efficacious in controlling the spread of respiratory infections has already been published. On the other hand, field trials of bactericidal mists (the earlier name "aerosol" is regarded as a misnomer) have been rare, despite the large amount of experimental work both here and in America. However, technical difficulties are being overcome, and reports on the value of chemical disinfection of the air in hospitals and in Army barracks are now appearing. Thus Harris and Stokes[3] have carried out an extensive trial of vaporized propylene and triethylene glycols in the wards of a seaside convalescent home for children. Conditions were particularly suitable for testing aerial disinfection; most of the children were confined to bed with rheumatic infection or for orthopaedic treatment so that direct droplet infection was minimal. There was little ward traffic and the children were out on the balconies during warm periods; infected dust was therefore probably not a serious factor. The six test wards were almost identical except that three were on the ground floor and three on the first. Propylene glycol was used in the first two winters and triethylene glycol in the third winter. The glycols were vaporized by immersion of an electric resistance coil in a beaker containing the fluid, and the vapour was dispersed by electric fans. One ward of a pair was treated with the aerial disinfectant for a 3-weeks period followed by a 3-days break to allow any incubating infections to declare themselves; then the other ward was treated while the original treated ward served as a control. A record was kept of all upper respiratory infections, classified as coryza, nasopharyngitis, tracheobronchitis, and other

[23] *J. ment. Sci.*, 1945, **91**, 8.
[24] Ibid., p. 89.
[25] Rees, J. R., *British Medical Journal*, 1943, **1**, 1.
[26] Line, W., and Griffin, J. D. M., *Canad. med. Ass. J.*, 1943, **48**, 394.
[27] Spiegel, H. X., *Amer. J. Psychiat.*, 1944, **101**, 310.
[28] Mallinson, W. P., *J. roy. nav. med. Serv.*, 1940, **26**, 281.
[29] Sutherland, J. D., *British Medical Journal*, 1941, **2**, 365.
[30] Wilde, J. F., ibid., 1942, **2**, 4.
[31] Sargant, W., and Slater, E., *Lancet*, 1940, **2**, 1.
[32] Rosenberg, E., *Internat. J. Psycho-Anal.*, 1943, **24**, 32.
[33] Jones, M., *Amer. J. Psychiat.*, 1944, **101**, 292.

[1] Wright, J., Cruickshank, R., and Gunn, W., *British Medical Journal*, 1944, **1**, 611.
[2] See *Aerobiology*: Amer. Ass. Advancem. Sci., Washington, 1942.
[3] *Amer. J. med. Sci.*, 1945, **209**, 152.

media. Over a total period of 81 ward-weeks there were 13 infections in the treatment wards and 132 in the control wards—a ratio of 1 : 10. During the winter 1942–3, when the common cold was unusually prevalent, only 3 instances of coryza were reported in the treated wards and 79 in the untreated group; the incidence of other respiratory infections in the same period was respectively 2 and 21. The concentration of propylene glycol in the ward air was around one part in 15 million (0.069 mg./litre) and the relative humidity was 30–60%, which is too low for the most effective use of the glycols. It was not easy to maintain a satisfactory level of triethylene glycol, which, though much more potent than propylene glycol, has apparently a narrow range between bactericidal and precipitating concentrations.

These remarkable results were obtained under almost ideal conditions for the application of aerial disinfection. They suggest that this method of control is particularly useful in virus infections which are spread, perhaps much more than bactericidal infections, by droplet nuclei and which probably require a very small infecting dose. But chemical disinfectants are also effective against air-borne haemolytic streptococci, as Cruickshank and Muir[4] originally showed with resorcinol, and as Robertson and his colleagues[5] have proved by a 65% reduction in their numbers from the use of glycol in Army hospital wards. However, the American workers agree with their British colleagues that dust-suppressive measures are at present the most effective and most practicable method of controlling bacterial respiratory infections in hospitals.

There are still many technical difficulties to overcome and new aerial disinfectants like the lactic acid group[6] to be tested. What is particularly needed in this country are facilities for properly controlled field trials of these new weapons against disease.

X RAYS IN INTESTINAL OBSTRUCTION

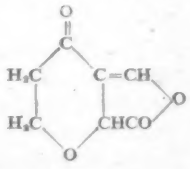
In the whole of surgery there is nothing that arouses greater anxiety than intestinal obstruction. One of the chief difficulties is the recognition of early and incomplete obstruction. Once the diagnosis has been made the main line of action becomes clear. Difficulties may arise later with regard to the amount of pre-operative preparation required, the right moment to operate, the anaesthetic, and the management of post-operative complications, and these decisions call for the exercise of sound judgment founded upon experience; but the whole process, in which the passage of time is of prime importance, will never be set in motion unless intestinal obstruction is first suspected. Confirmation of the diagnosis involves careful analysis of the history, prolonged and if necessary repeated physical examination, and the employment of any special diagnostic methods which may throw light on the problem.

The value of a recent monograph by Dr. Fredrik Koch[7] lies mainly in his assessment of the help which may be obtained from *x*-ray studies of obstruction due to adhesions and bands, though his painstaking and thoughtful statistical inquiries into the causation and results of this form of obstruction are also of much interest and importance. Since adhesions occurring in tuberculosis and cancer are excluded, his 145 cases fall naturally into two groups—those following laparotomy, especially for appendicectomy, comprising two-thirds of the whole, and carrying a mortality rate of 25%; and those without previous laparotomy, most frequently due to a Meckel's diverticulum, with a mortality rate of 36%. Koch advises that, whenever it is possible to do so, *x*-ray examination in the horizontal and vertical positions should be made, attention being paid particularly to the amount of gas in the small intestine. The appearance of fluid levels in the coils of gut is a later sign. He gives as a useful "control" the degree of gas distension found in association with renal calculus, perforated peptic ulcer, and acute appendicitis. Out of 119 patients examined a correct diagnosis of obstruction was made in 109, the mistakes occurring in the earliest stages—within 6 hours of the onset—where the accumulation of gas was minimal. He advises, further, that when operation is not immediately called for a small quantity of barium should be given and followed through, and he gives good pictures to show the arrest of the opaque meal in some of the doubtful cases.

The need for such special methods of diagnosis must be determined by the skill, patience, experience, and judgment of the clinician, but Koch makes out a good case for using *x* rays almost as a routine, and certainly when in doubt. His full review of the literature shows that he is not breaking new ground; but the thoroughness with which he has worked over his own material makes his record a worthy contribution to the subject.

PHARMACOLOGY OF PATULIN

As will be remembered, patulin is a product of the mould *Penicillium patulum*, and it was first described in detail by Birkinshaw *et al.*[1] in 1943. Its structural formula is shown on the right. It appears to be identical with claviformin,[2] clavatin, and clavacin.[3] A concentration of about 1 : 30,000 in glucose broth completely inhibits the growth of Gram-positive and Gram-negative bacteria. Appraisal of its properties was initially distorted by the claim (subsequently disproved) that it possessed curative action for the common cold. It has since been the subject of a very detailed pharmacological investigation by a team of skilled workers, and their recently published reports give an exhaustive account of this aspect of its action.[4]



Patulin appears to be a highly toxic substance, the dose required to kill 50% of the mice treated being 0.5 mg. per 20 g. if injected intravenously, or 0.3 mg. per 20 g. if injected subcutaneously or intraperitoneally: the greater toxicity by these two latter routes is curious. One of its chief actions is to damage the endothelium of the capillaries, causing a widespread and increasing oedema; this is accompanied by general peripheral vasodilatation. It also acts as a general tissue poison, as shown by its toxic effect upon the conjunctiva, upon ciliary movement, and upon the growth of fibroblasts in tissue culture; when applied to superficial wounds it delays healing, and ointments containing a concentration of 1 : 200 cause superficial necrosis. Minor pharmacological properties include a strong antidiuretic action and a mild general stimulation of the

[4] *Lancet*, 1940, **1**, 1155.
[5] *J. Amer. med. Ass.*, 1944, **126**, 993.
[6] Lovelock, J. E., Lidwell, O. M., and Raymond, W. F., *Nature*, Jan. 1, 1944, p. 20.
[7] "Clinical and Roentgenological Studies of Acute Obstruction of the Small Intestines due to Adhesions and Bands," by Fredrik Koch, *Acta chir. scand.*, 1944, **90**, Suppl. 88, 165.

[1] *Lancet*, 1943, **2**, 625.
[2] Chain, E., Florey, H. W., and Jennings, M. A., *Brit. J. exp. Path.*, 1942, **23**, 202.
[3] Wiesner, B. P., *Nature*, 1942, **149**, 356.
[4] Broom, W. A., Bülbring, E., *et al.*, *Brit. J. exp. Path.*, 1944, **25**, 195.

respiratory, vasomotor, and other centres in the medulla oblongata. However, its general toxicity is thought to be too great to permit its therapeutic use. Doubtless all knowledge is valuable, but the investigators deserve our sympathy for having been led after all their careful work to this (clinically) disappointing conclusion. The organization of their research, however, deserves comment quite as much as its results do. The work was carried out as a collaborative study in the laboratories of the Therapeutic Research Corporation and in the Pharmacology Department of Oxford University. It is a good example of co-operation between academic and industrial scientists, such as was previously often described as one of the bases of (former) German pre-eminence in pharmacology and chemotherapy. It is also an omen of the increasingly large part in these fields which will be played by commercial laboratories. Sixty years ago advances in pharmacology depended mainly on the academic scientist working in isolation with limited resources; in the future they will depend much more on large, well-organized teams such as the one responsible for the work described above.

CZECHOSLOVAKIA AFTER LIBERATION

A medical officer of the Czechoslovak Ministry of Health, Dr. A. Kleinzeller, at an U.N.R.R.A. conference in London has given some account of conditions in his country, from which he has lately returned. The main problems encountered in the liberated territory have been epidemics of dysentery, typhus, and typhoid, actual or threatening, and a difficult food and transport situation. The worst conditions were found in Moravia and Eastern Slovakia; in Western Slovakia and in Bohemia they were less severe. In Bohemia, for example, many of the hospitals are standing, whereas in Slovakia they were destroyed by the retreating Germans and Hungarians. The shortage of doctors has presented another urgent problem. In Bohemia and Moravia alone it is calculated that the normal medical population has diminished by one-half. This is due mainly to the exile of many Czech doctors, the departure of German doctors who had practised in Czechoslovakia, and the non-recruitment of students. The University of Bratislava remained open during the five years of the German occupation, but the Universities of Prague and Brno were closed and no doctors could be trained. The University of Prague has now reopened and has had applications from 2,800 students who wish to take up medicine. It has arranged shortened courses for a number of others who had already undergone some training. Dr. Kleinzeller described the German concentration camp at Terezin, about forty miles north of Prague, which he had visited the previous week. This was a camp with a population of 36,000, originally mainly Jewish. The Red Cross took over its protection on May 4, on which date a number of Czech doctors went in to cope with a severe situation arising from outbreaks of dysentery and typhus. The help of the Soviet army medical authorities had to be called in, and they took over the greater part of the task. In the Soviet hospital at Terezin there are now about 2,500 patients, mostly recovering from one or other of the epidemic diseases, and the Czech emergency State hospital has 1,200 more. Thanks to this double effort the epidemic has been stayed, and on the day of Dr. Kleinzeller's visit only five new cases of typhus were notified. In addition to the victims at Terezin a number of people are recovering from typhus in the Prague hospitals. The brighter side of the picture is the quick restoration of services, the resolute handling of the food and transport situation, and the assistance of U.N.R.R.A in the provision of medical personnel and supplies.

SUSPECTED PNEUMOKONIOSIS OF GRAPHITE WORKERS

Pneumokoniosis is a general term used to designate pulmonary reaction to inhaled dust, regardless of the type of dust or the kind of reaction. Certain dusts when inhaled in sufficient quantity give rise to typical pathological changes of the lung tissue—for instance, quartz dust may cause silicosis, and asbestos dust asbestosis. Silicosis was formerly attributed to a mechanical action of the quartz in the lungs, but tissue reactions similar to those of quartz were not produced in animals with diamond, silicon carbide, and other materials harder than quartz. The view is now therefore generally held that silicosis is due to a chemical action of dissolved silica, resulting in a destruction of primary phagocytes and the growth of redundant fibrotic tissue. No material that does not contain silica in some form is known to have a similar effect.

It is against this background that a recent communication by L. Dunner on pneumokoniosis of graphite workers[1] must be considered. Dunner presents skiagrams of five graphite workers which show various degrees of fibrosis. The workers had been exposed to pure graphite dust for 17 to 30 years. In contrast to the marked *x*-ray abnormalities there were but few physical signs on auscultation; and while three of the men were "chesty" (cough, sputum, shortness of breath) two had no complaints, and all felt fit for work. Dunner quotes Continental experience with workers exposed to graphite or carbon-black dusts, such dusts having been generally considered harmless. He believes, however, that his observations establish the fact that graphite inhalation does produce lesions in the lungs, a fact not hitherto described in this country. But it must be pointed out that in the most striking case, with massive opacities, 30 years of the working life have to be accounted for. Indeed, Dunner states that while no exposure to dust besides graphite was admitted to by any of the five men, such exposure cannot be strictly excluded. It should be an invariable rule when describing possible dust lesions to give the occupational histories in detail; unless this is done it is impossible to attribute the lesions to a supposed cause.

Graphite is a crystalline modification of the element carbon, and may be looked upon as intermediate between well-crystallized diamond on the one hand and amorphous carbon-black or ash-free anthracite on the other. Animal experiments with diamond, anthracite, and other forms of coal have, according to L. U. Gardner,[2] not caused any fibrotic tissue reaction, but V. A. Ravvin and P. A. Eniakov[3] say that in animal-dusting experiments coals do bring about a limited change, anthracite more so than bituminous coal. From what is known at present it would be surprising if inhaled graphite were to have any specific damaging effect on the lung. To what extent the presence of inert foreign material will impair lung function, or how much of it would be required to constitute a hazard, is not known; nor do we know whether it would modify supervening infections. The lack of authentic symptoms in the five graphite workers suggests that the "lesions" inferred from the skiagrams may be accumulations of graphite, similar to "nodules" of an iron arc welder which on necropsy were found to be collections of iron particles.[4] Knowledge of pneumokoniosis is still incomplete, and it is a merit of Dunner's paper to have drawn attention to the *x*-ray appearances of the lungs of graphite workers. It is to be hoped that more detailed investigations will follow.

---

1 *Brit. J. Radiol.*, 1945, **18**, 33.
2 *J. Amer. med. Ass.*, 1938, **111**, 1925.
3 Private communication, quoted in M.R.C. Spec. Rep. Ser., No. 242, p. 151.
4 Enzer and Sander, *J. industr. Hyg.*, 1938, **20**, 333.

THE CARE OF THE WOUNDED

An exhibition illustrating the care of the wounded in war is open to the public in the Mall, under the battlements of St. James's Palace, until the end of July. It is presented by the Red Cross and St. John War Organization in collaboration with the Army Medical Services, and sponsored by the *Daily Herald*. It was declared open by the Director-General, A.M.S.

The visitor is first introduced to a model of a battle area made to scale from an ordnance map representing ten miles of country and designed to show the normal lines of evacuation of wounded. Next comes a realistic reconstruction of a regimental aid post three-quarters of a mile behind the line, with battle casualties (life-size models) being brought in by stretcher-bearers and receiving first aid. Beyond this is a casualty clearing post formed by a field ambulance section, with its improved facilities for first aid and for making the patient comfortable for his further journey. A model of the advanced dressing station formed by headquarters of a field ambulance shows the provision for blood transfusion and for other treatment. Then we have a casualty clearing station in which urgent operations are being carried out by a lifelike team of surgeon, anaesthetist, sister, and operating-room assistant. The visitor next passes into a tented ward, supposed to be in the general hospital at the base, where patients spend some time before being invalided home or sent to the convalescent depot. Then there are a number of pavilions illustrating by photographs and models various aspects of the treatment of the wounded, such as the testing and use of penicillin. One pavilion is devoted to the activities of the Army Dental Corps and displays the various types of equipment for dealing with maxillo-facial injuries. Another is concerned with the preventive work of the Army Medical Services, such as the means of ensuring a pure water supply and protection against insect-borne disease. Occupational therapy, for which both the Army medical authorities and the Red Cross provide materials and instructions, is demonstrated in another pavilion. Then the eye is caught by such exhibits as an *x*-ray unit self-contained in its vehicle, a mobile dental unit, and an ambulance car, one of nearly a thousand which the Red Cross and St. John maintain in Army commands in this country and over-seas. One British motor ambulance which is on view has a history. It was abandoned at Dunkirk, and afterwards used by the Germans on both the Russian and Western fronts—it still bears German number plates and military markings—and was recaptured at Commeux last August.

A pavilion is devoted to the innumerable Red Cross and St. John services to the wounded—services which have no precise limits and adapt themselves to any need. They include the making of 13 million hospital garments by an army of 200,000 needlewomen, a library service which has put four million books into circulation among the wounded, 237 auxiliary hospitals in commission at the moment, and ambulances which have travelled eight million miles.

TUBERCULOSIS EDUCATIONAL INSTITUTE

Tuberculosis is a great national problem, and authoritative knowledge is required nowadays not only by doctors and medical students but also by social workers, health visitors, and interested laymen engaged in the campaign against the disease. In the near future new schemes of treatment, research, and restoration to working capacity will increase the need for education and training in modern ideas. Oversea and Empire visitors, doctors, and other health workers require instruction in British methods and antituberculosis measures. As briefly announced in the *Journal* of June 16, the National Association for the Prevention of Tuberculosis and the Joint Tuberculosis Council have formed a new organization, to be called the Tuberculosis Educational Institute, to supply these needs. It will be managed by a committee under the chairmanship of Dr. Frederick Heaf, with the following members: Prof. W. H. Tytler, Dr. A. S. Hall, Dr. A. Morland, Dr. J. C. Simpson, Dr. Norman Smith, Dr. D. P. Sutherland, and Dr. R. A. Young.

The functions of the new body will be: (*a*) to arrange courses, lectures, and demonstrations for the education of doctors, nurses, almoners, and social workers in tuberculosis; (*b*) to act as a centre of information in all matters connected with education in tuberculosis; (*c*) to recommend candidates for N.A.P.T. scholarships to assist doctors, almoners, nurses, and social workers to study tuberculosis; (*d*) to suggest lines of research in tuberculosis; (*e*) to issue a half-yearly index of tuberculosis literature; (*f*) to facilitate and encourage the study of tuberculosis in this country by visitors from over-seas.

The Tuberculosis Educational Institute will help the individual doctor or health worker seeking knowledge on the subject. A register of lecturers and tutors will be formed who will be available to give instruction to workers at home or from over-seas. A managing committee has arranged many successful refresher courses for doctors, health visitors, and social workers, and, with co-operation from postgraduate medical schools, these activities will be extended as opportunity offers to all parts of the country.

The work of the Tuberculosis Educational Institute will be arranged to fit in with the general scheme of postgraduate education now being planned. Its secretary will be the secretary-general of the N.A.P.T., Dr. Harley Williams, who has been placed at the service of the Joint Committee for Education (since its inauguration in 1943) by the Council of the N.A.P.T.

HEALTH AND SANITATION IN RANGOON

Health officers of the British military administration in Burma have announced that Rangoon is free from epidemics. The population is healthier than in any other part of liberated Burma, and has remained fairly well clothed, because of the large stocks of material which were left in the city in 1942. There has been no real food shortage in and around the city. Soap was produced in undamaged local factories, and thus contagious skin diseases, so prevalent in other parts of the country, have not reached epidemic proportions. Another reason for the local population's comparatively healthy condition was the attitude of the Japanese, who, contrary to what they did in most parts of Burma, made some effort to curb disease epidemics in Rangoon, where they came into daily contact with the inhabitants in the docks, munition factories, and supply dumps. Yet the Japanese refused to supply the city's hospitals with drugs; and left behind them large surplus stocks which the British military administration is using for the civilians. They removed the *x*-ray apparatus, although they did not use it themselves, and operations were performed without anaesthetics. To-day, broken sewer pipes have been repaired and the modern compression centre, now working again, has brought a greater part of the city's sewage system into operation. This area includes the crowded business, bazaar, and Chinatown sectors, where hundreds of civilians daily are returning from outlying districts. The 45-mile water pipe-line which brought fresh water to Rangoon—which has always suffered a natural water shortage—is under repair and will come into operation in a matter of days. At present there are sufficient water points in the city to supply the depleted population.

NUTRITIONAL LOSS IN FOOD PREPARATION

The losses of nutrients in the preparation of foodstuffs were the subject discussed at a meeting of the Scottish Group of the Nutrition Society at Dundee on May 19.

Prof. S. J. WATSON, of the East of Scotland College of Agriculture, gave a paper on the losses in conserving farm produce, a subject on which, he said, there was a dearth of accurate information. Losses from drying could not be avoided in grains, and in the case of potatoes disease and rotting took a toll; these losses had to be borne by the farmer. Many foodstuffs were still living when placed in store and had to continue to respire in order to live. Respiration involved the giving off of carbon dioxide, which resulted in a gradual loss of weight. In potatoes this loss amounted to about 1.3% per month, so that by the end of June some 15 to 20% had disappeared. The vitamin C in potatoes also fell during storage till it was almost half what it was originally; then it increased again to nearly the full amount just before sprouting began.

Miss MARY ANDROSS, of the West of Scotland College of Domestic Science, discussing this problem with special reference to cooking and plate waste, compared the relative loss when eggs were prepared in different ways. In scrambled eggs the loss was 13.5%, in poached 7.5%, and in an omelet 3%. In frying the loss depended on the temperature employed; at 126° C. it was only 1.5%, but at smoking temperature (235° C.) it was nearly 9%. In beef and mutton there was a loss of from 12 to 45% during cooking according to the cut, and plate waste was often very high. There were unexpected differences in the amount of waste between home-fed and imported meats. Losses in vegetables were frequently high, but varied with demand and with the season. Green vegetables were often so wilted when they reached the customer that much had to be rejected. This lack of freshness meant a big loss of vitamins A and C. Some other method of supplying fresh vegetables was needed to avoid the losses of essential elements. The speaker emphasized the importance of home production of vegetables, of increasing market-gardening facilities near towns, and of improving conditions of marketing. Investigations into the plate waste in nine schools showed that it averaged 7% for protein and for fat, but only 1.4% for carbohydrate. Plate waste in the home, on the other hand, was less than 2% for all the primary food factors.

Dr. C. P. STEWART said that fruit and vegetables when cooked might lose up to 30% of water and a corresponding proportion of water-soluble constituents. The water-soluble substances were more leached out by boiling than by steaming, and the process was increased by the duration of the cooking. Addition of baking soda

by raising the *p*H, increased the loss of water-soluble materials, but the increase was not great and was compensated for to some extent by the shorter time required for cooking. Dr. Stewart pointed out that though the percentage losses during cooking appeared large, they might be of little real importance if the figures were small in relation to the total intake, but would be important in the case of certain vitamins which were not available in other foods. Ascorbic acid and aneurin were both subject to destruction during heating; the greatest loss occurred during slow cooking and while the food was kept hot before being served. For example, in April 150 g. of whole potato boiled and quickly served should yield about 10 mg. of ascorbic acid, but if mashed and kept warm for an hour before serving only about 3 mg. might be available. In meats or fish fat loss from liquefaction and leakage might amount to 7 to 20%. In the case of cereals, riboflavin, being relatively stable, was adequately conserved, but aneurin was more readily destroyed, especially when the *p*H was high. The loss was greater when baking powders were used instead of yeast.

Reports of Societies

THE ART OF COMMAND

Lord Moran, P.R.C.P., delivered the 56th Cavendish Lecture before the West London Medico-Chirurgical Society on June 19. His theme was "The Art of Command," and his illustrations were derived from his experiences as a serving officer in the 1914–18 war and as one privileged to have come into close contact with the leaders of the war of 1939–45. The citizen soldier of to-day, he said, unlike the yokel soldier of Agincourt, of whom Shakespeare wrote, "If these English had any apprehension they would run away," was an imaginative person, sceptical also, having been brought up, a child of the last war, to believe that war never settled anything. How was it that such a man had done so well? The effect of discipline, partly, but even more, he thought, *esprit de corps*. The young English officer did not easily become a juvenile Führer: he had an instinctive distrust of coercive measures, and therefore he fell back upon setting an example of imperturbability in the face of danger. Lord Moran recalled how one battalion of the Rifle Brigade had to cross a level space swept by shellfire. An officer dropped his gun and went back to pick it up with the same nonchalance as he would have picked up a dropped glove in the aisle in church. It had an immense effect on the men. That sort of example was infectious.

Of other qualities without which even genius was useless in war, Lord Moran mentioned toughness—the toughness exhibited by Foch: "My right yields; my centre collapses; situation excellent; I attack." But yet another quality was wisdom, a kind of greatness of which Eisenhower was an extraordinary example. Lord Moran found other examples in the Prime Minister and the late President Roosevelt, both of whom were incapable of petty things, and this led him into a personal digression: on an August day in Washington, on the eve of a journey to South Carolina, the President said to him: "You do not know the South Carolina sun. Look after the Prime Minister to-morrow." Next day, under a sweltering sun and amid clouds of dust raised by the tanks, a telegram was put into his hand by General Marshall: "You and Lord Moran are in command. Enough said.—Roosevelt." It was Roosevelt's pleasant way, in the midst of his own preoccupation, of reminding him of his particular charge. No wonder that the Prime Minister had said to him once, when they were walking in an orange garden at Marrakesh: "I love these Americans." When history came to be written the friendship between those two men would be seen to be one of the chief factors in the achievement of these years.

Another quality in command was knowledge of men. Some men who had themselves attained high positions were singularly lacking in their ability to pick the right people. They did not know a man when they saw him. The ability to know what was in a man, almost at a glance, was as invaluable to the commander of an army as it was to a consulting physician who might see a complete stranger every hour. Incidentally Lord Moran said that that was the late Lord Dawson's most extraordinary gift. He remembered being at a consultation with him, and after they had examined the patient they went into a room where there were seven relatives; Lord Dawson seemed to know, before anything was said, what was passing in the mind of each of them and the anxieties to which they were subject. It was no doubt a gift with which one was born; but it could be developed, and the way to develop it was to take an interest in one's fellow beings. Everybody claimed to have the gift of being able to judge his fellows. They would acknowledge that they could not bat like Hobbs or play the violin like Kreisler, but they would claim that they could sum people up. Yet it was one of the rarest of gifts.

In the earlier part of his talk Lord Moran attempted to define courage. Half a dozen answers, he said, might be given to the question "What is courage?"—that it was will power, lack of imagination, just phlegm, the result of discipline, the infection of example, the result of any idea which for the moment, possessing one, swept away fear. But three parts of courage was in control. A man had in his bank, said Lord Moran, a certain amount of courage, and when he became overdrawn he was finished as a soldier. It was not a fixed amount, for there was paying in as well as drawing out, but in the long run the soldier found that time was against him. People wore out in war just like clothes. Fatigue affected the soldier exposed to peril and hardship in exactly the same way as it affected the civilian who worked too hard over too long a stretch. One of the factors that lowered the morale of a soldier was his own thoughts—thoughts which went on festering in the mind.

In conclusion Lord Moran asked—and answered—three questions. Could war make any man a coward in time? He gave the verdict—without any time for the supporting proof—that modern war signally failed to make cowards out of good stock. When modern war had done its worst, if a man behaved badly and was unable to control his instincts, there was something wrong with the stock from which he came. Was imagination a help or a handicap in war? If imagination was controlled by character it meant the blossoming of the finest people of our land. And, finally, was courage common? If by courage was meant the capacity to act under orders it was common enough, but if by courage was meant the quality which gave a man some measure of leadership, then all the finest things in war as in peace were the possession of a few—a fraction of the people—in whose keeping was the honour of the race.

GYNAECOLOGY AND OBSTETRICS

At the April meeting of the North of England Obstetrical and Gynaecological Society Prof. D. DOUGAL demonstrated a specimen of granulosa-cell tumour of tubal type.

The patient, aged 22, had been married 2 years, and had a history of a three-months miscarriage soon after marriage. She complained of 17 months' continuous uterine haemorrhage, with backache as the only other symptom. The menarche had occurred at 11 years and her menstrual habit was 7/42 until the onset of the present complaint. Previous medical and surgical history was uneventful. Examination showed a well-developed young woman with normal secondary sex characteristics. Anaemia was present as a result of the bleeding. The right ovary appeared to be replaced by a readily palpable solid tumour about the size of a tennis ball. Granulosa-cell tumour was diagnosed, and on laparotomy this was confirmed, and in addition there was evidence of an antecedent pelvic infection leaving light film-like adhesions. Right salpingo-oophorectomy was performed. For three years she had now been perfectly well and had menstruated regularly, but she had not as yet become pregnant.

The specimen was a solid ovarian tumour, almost spherical, diameter 3 in. The tumour was encapsuled, lobulated, and of a bright yellow colour. Its consistence was firm and elastic. The histological picture showed well-developed tubules more or less divided into lobules by incomplete septa well supplied with blood vessels. The remainder of the ovary, containing Graafian follicles, etc., was seen stretched over the tumour outside the capsule. No recent corpora lutea were present. The general arrangement of the tumour suggested that it had originated in the medulla or hilum. The tumour was an encapsuled, luteinized, and hormonally active adenoma of the ovary. The hormonal activity seemed to be oestrogenic. It was a highly differentiated tumour, but along unusual lines, the tubular arrangement being not unlike that of Pick's testicular adenoma of the ovary, which, however, was a virilizing tumour. Traut and Butterworth (1937) described and illustrated a tubular type of granulosa-cell tumour. Similar types have been described by Varangot (1938) and D. N. Henderson (1942). In Henderson's case there was vaginal bleeding with precocious development of sex characters in a girl aged 7 years. This type of granulosa-cell tumour must be extremely rare.

Primary Carcinoma of Fallopian Tube

Dr. W. R. ADDIS read a note on three cases of primary carcinoma of the Fallopian tube. He pointed out that the first primary carcinoma of the Fallopian tube ever recorded was by Renaud of Manchester in 1847. In the next 96 years 227 cases were traced in the literature. They occurred in gynaecological cases roughly 1 in 6,000. This formed 0.5% of genital cancers in women. There was a survival rate of about 6%. Three cases had been recorded previously in the North of England Society.

The first was that of a woman of 39 who had had a child 17 years before. She had bearing-down pain with occasional gushes of clear fluid per vaginam, and this seemed to relieve the pain. The uterus was definitely enlarged and a fullness could be felt in both fornices. Supravaginal hysterectomy with the removal of both appendages was performed. The uterus contained a small fibroid. Both tubes were closed and dilated, and contained clear fluid. Projecting into the cavity of the left tube was a mass about the size of a thumb-nail which proved to be a papillary adenocarcinoma. Soon after returning home she developed ascites and swelling of both legs and died within a year.

The second case was that of a married woman aged 55, a virgo intacta. There had been a slight post-menopausal haemorrhage for two months. Gushes of clear fluid occurred, noticed while playing golf. Diagnostic curettage revealed nothing abnormal. Six months later when she was seen again a large pelvic mass could be felt to the right of the uterus, having a fungating projection into the vagina. She died within a year of first being seen. In spite of the absence of pathological evidence, the history of intermittent gushes, etc., pointed to a primary carcinoma of the Fallopian tube.

The third case was that of a woman aged 60. She had two children. For five weeks she had had a blood-stained discharge; and she thought that she was having sudden losses of urine accompanied by lower abdominal pain on the left side. On dilatation of the cervix several ounces of fluid escaped, and this was collected. Bimanual examination showed a soft mass in the left lateral fornix. The fluid was reported by the laboratory as not being urine. Panhysterectomy was performed. The specimen showed a solid tumour about 1½ in. by 1¼ in. just proximal to the fimbriated end of the left tube. The uterus contained a small endometrial polypus. Doran had described a watery discharge in 47% of cases, and it seemed to be the most typical symptom. Pain sometimes (but not always) accompanied this phenomenon. The expectation of life was apparently short. Dr. Tod of the Radium Institute pointed out that these cases were difficult for deep *x*-ray or radium therapy because of the mobility of parts and the fact that this type of cancer was resistant to radiation.

Peroneal Palsy after Parturition

Miss ELEANOR M. MILLS read a short paper on peroneal palsy following parturition. This was described by von Basedow in 1838, after which the majority of contributions had come from French obstetricians. In 1939 only 107 cases had been reported in the literature, though the condition was fairly common. The seven cases described by Miss Mills had been collected from the local records of hospitals over a period of three years.

The first case was a second para aged 37. Two years before, she had been delivered of a 9½-lb. baby with difficulty and forceps. Soon after delivery paresis of the dorsiflexors of the left ankle had appeared, and it was six months before she was able to get about. She had a contracted true conjugate, and a narrow subpubic angle and outlet. She still dragged her left foot slightly, tended to walk on the ball of the foot, and there was some definite wasting of the anterior tibial group of muscles on the left side. She was induced about three weeks before term, and labour progressed satisfactorily except for low forceps. A live 8¼-lb. child was delivered. There were no signs of peripheral nerve damage after this delivery.

The second case showed some general contraction of the pelvis. The head was occipito-posterior, and manual rotation and forceps were required. Considerable force was necessary for extraction. The child was delivered strictly in the antero-posterior position. A stillborn 9-lb. baby was produced. On the next day the mother had pain, numbness, and tingling over the outer aspect of the left thigh and the whole of the leg and foot. Full dorsiflexion could not be obtained, and over the dorsum of the foot there was diminution of the epicritic sensation. By the sixth day she had regained full dorsiflexion and all disturbances of sensation had disappeared.

The third case was a primigravida. She had a long labour; the position of the child was occipito-posterior. Manual rotation and forceps extraction were performed with difficulty. A stillborn baby was delivered. Ten weeks after delivery, when seen by Miss Mills, she was noticed to have a generally contracted pelvis. She limped badly. Complete loss of eversion and extension of the ankle-joint were present, all sensory symptoms having by this time disappeared.

The fourth case, aged 34, was a primipara with ample measurements. The position was left occipito-anterior. She had a long first stage (77 hours) followed by a mid-forceps extraction. Delivery was exceedingly difficult. The child, 8 lb., was extracted. Pain in the right leg was complained of, and paresis of the anterior tibial and peroneal muscles of the right leg was found. Foot-drop was still present when she was transferred to the orthopaedic surgeon on leaving hospital.

The fifth case was a sixth para who was in labour 44 hours. The presentation was a brow lying in the right oblique diameter with face to the front. A craniotomy was necessary. Two days later pain appeared in the right leg and then paresis followed. She was treated by passive movements, and by the time of discharge the condition had cleared up.

In the sixth case manual rotation was necessary after a fairly normal labour and an 8¼-lb. baby was extracted with some difficulty. The next day cramp-like pain was felt in the left leg, and shortly afterwards paralysis followed. No sensory loss was detected. On discharge three weeks later the paralysis of the dorsiflexors of the left foot was still nearly complete. She was referred to an orthopaedic clinic.

The seventh case was one of albuminuria of pregnancy; but, as the albumin persisted, she was induced by rupturing the membranes at 38 weeks. The position was L.O.P. A deep transverse arrest of the head occurred; and manual rotation and forceps extraction were necessary, and were performed apparently without much difficulty. Next day tingling was felt in the right lower limb and dorsiflexion was impossible. There was no sensory loss. One month later there was still some slight degree of paralysis.

In the commentary Miss Mills pointed out that one or more of three essential factors were always present: disproportion, prolonged or difficult labour, or instrumentation. It appeared that the upper roots of the sacral plexus lay against bony walls of the pelvis and were thus exposed to pressure during certain difficult labours. Dorsal offshoots of these nerves received the chief injury. The external popliteal nerve was made up of these fibres, and therefore paralysis was chiefly located in the distribution of this nerve. The main mass of the sacral plexus was to some extent cushioned by the pyriformis muscle. It would seem that it was in the generally contracted pelvis rather than the rachitic pelvis that the plexus was in a more vulnerable position, because of the deep niches on either side of the projecting vertebral promontory in the rachitic pelvis. It would be noted that in two cases only did the paralysis occur on the side on which one would expect the pressure from the foetal head to occur. One must presume that the peroneal nerve had been damaged by instrumentation in four of the cases.

Lower-segment Caesarean Section

Dr. K. V. BAILEY read a paper on this subject. Since a previous paper which he gave to the Society in 1934 his series had increased by 285 cases, of which 75 had been elective. The operation had been carried out twice in 45 cases, three times in 4 cases, and four times in 1 case. There were 2 maternal deaths, and 3 children failed to survive. He had never been in two minds concerning the superiority of this operation over the ordinary classical one. In his series there were 22 cases in which the indication was placenta praevia. Particularly with local analgesia, bleeding was not excessive, and there had been no cases of sepsis or embolus. In the cases in which a lower-segment operation had been carried out more than once in the same patient he had always been gratified to find the perfect healing which the lower segment had undergone and the almost universal lack of adhesions to the scar. Five patients delivered themselves through the pelvis following lower-segment Caesarean section. He regretted that the majority of the cases—all but 31—had been under general anaesthesia. He now favoured local analgesia; if he had any criticism it would be (1) that the perfect premedication for all types was difficult to find; (2) that the well-trained nursing staff essential to deal with the mental and physical preparation of the patient and the theatre staff to assist at operation were not always available in outlying hospitals and nursing homes; and (3) that there might be some effects of premedication upon the child, for there was no doubt that the respiratory centre in some infants was highly susceptible to the influence of narcotic drugs.

He reiterated his view that lower-segment Caesarean section was the operation of choice in all cases, while admitting that the risk increased rapidly in non-elective cases, and particularly when potential or actual sepsis was present. But he believed

the operation to be safest for mother and foetus. It could be used in clear, suspected, or infected cases without jeopardizing the general condition of the patient or exposing her to peritonitis. It allowed the use of trial labour, avoided embryotomy of the living foetus, and permitted the development of subsequent pregnancies without fear of uterine rupture. The operation should be carried out as often as possible before the commencement of labour or early in labour. The question of clinical skill in the assessment of indications and contraindications would, of course, always remain.

In the course of his paper Dr. Bailey gave some account of opinion in the United States, where the classical operation was still in vogue, notwithstanding the exclamation of one prominent American obstetrician, "How long will it be before the classical Caesarean section is outlawed?"

EXOPHTHALMOS AND ENDOCRINE DISTURBANCES

A discussion on this subject took place at a meeting of the Section of Ophthalmology of the Royal Society of Medicine on June 8, Mr. P. E. H. ADAMS presiding.

Dr. W. RUSSELL BRAIN said that this was a complex problem for which no current hypothesis was adequate. The syndrome called exophthalmic ophthalmoplegia was characterized by exophthalmos, chemosis, external ophthalmoplegia, swelling of lids, and, in severe cases, papilloedema. The puzzling feature in its aetiology was that such a clinical picture might be associated with (1) thyrotoxicosis, (2) myxoedema, or (3) a normal state of thyroid function. Two conflicting solutions had been proposed by British workers. Mulvany[1] believed that there were two forms of exophthalmos—thyrotoxic and thyrotrophic. Rundle and Pochin[2] maintained that exophthalmos in Graves's disease was due to an increase in bulk of retro-ocular tissues, the increase being due to fat and being greatest in the eye muscles. Rundle and Wilson[3] proposed to distinguish two forms of Graves's disease—an ophthalmic form without thyrotoxicosis, and a thyrotoxic form. Clearly this view was unsatisfactory, for if the ophthalmoplegia was due to increased fat caused by thyrotoxicosis what could be the cause of it in non-thyrotoxic cases?

There was now considerable evidence in favour of thyrotoxic exophthalmos and ophthalmoplegia, however thyrotoxicosis might operate. Some evidence had been forthcoming that exophthalmos might be produced by administration of thyroid extract and disappear on its withdrawal. There was also to be remembered the improvement in both exophthalmos and ophthalmoplegia which sometimes followed thyroidectomy, but neither exophthalmos nor ophthalmoplegia was usually severe in thyrotoxicosis, except perhaps in older patients. It must not be too readily assumed that exophthalmos which was not thyrotoxic was thyrotrophic, and vice versa. Might there not be a further factor? After thyroidectomy there was commonly a rapid gain in weight, and already, owing to the thyrotoxicosis, there was increased fat in the orbits. What was the effect of the rapid deposition of more fat? Were the progressive exophthalmos and ophthalmoplegia in such cases to some extent mechanically induced? If so, three causes of exophthalmic ophthalmoplegia would have to be recognized—namely, thyrotoxicosis, thyrotrophicosis, and the rapid change from thyrotoxicosis to hypothyroidism or even to normal.

Dr. Brain reviewed 61 cases he had seen, in 11 of which the condition had followed thyroidectomy and in 1 had followed thiouracil. In the post-thyroidectomy group males were affected at least four times as often as females, and as females got hyperthyroidism nine times as often as males, males were 36 times more likely than females to get exophthalmic ophthalmoplegia after thyroidectomy for thyrotoxicosis. This striking sex difference seemed to favour an endocrine factor in aetiology rather than mere increase in weight or myxoedema. For treatment he had chiefly used oestrogen for both sexes. The results were mostly disappointing, occasionally good. Most patients improved up to a point. He had increased the dose up to 20 mg. of stilboestrol in some cases.

[1] *Amer. J. Ophthal.*, 1944, **27**, 589.
[2] *Clin. Sci.*, 1944, **5**, 51.
[3] Ibid., p. 17.

An Attempt at Grouping

Prof. IDA MANN said that part of the difficulty of diagnosis might arise from failure to recognize that two entirely different conditions were concerned. It was possible to distinguish clinically between the condition in which there was a large amount of exophthalmos with a great deal of lid retraction, but no true oedema of the lids themselves, and the condition in which there was true oedema of the lids with proptosis. She divided her series of cases into three groups in the attempt to find out whether it was possible to distinguish from a clinical and treatment point of view these two main types—namely, one due to excess thyroxine, and the other to the action of the anterior lobe of the pituitary. The pituitary undoubtedly had a regulating mechanism, and under conditions of stress it might secrete more thyrotrophic hormone because there was need for more thyroxine to meet the emergency. Her three groups were as follows:

1. Cases in which there had been a primary deficiency of thyroxine with a compensatory excess of thyrotrophic hormone, which was thus present without thyroxine to utilize it. These were people in whom a gain in weight was first noted, coinciding with exophthalmic ophthalmoplegia and oedema of the lids.
2. Cases in which there was a history suggesting thyrotoxicosis, the initial symptoms being loss of weight, tachycardia, tremor, followed by ophthalmoplegia and exophthalmos. These were people in whom there had been an excess of thyroxine, and the thyroid had then atrophied or had been removed, and the symptoms had arisen sometimes following mental shock or anxiety.
3. Cases in which both conditions appeared to have started simultaneously—loss of weight, tachycardia, tremor, exophthalmos, and ophthalmoplegia all coming on after sudden shock.

Her first group consisted of three men and one woman, all between 50 and 60. Two conditions could be distinguished clinically in these people: oedema of subcutaneous tissue and protrusion of orbital fat. These two conditions looked quite different and felt different on palpation. In this group the basal metabolic rate was consistently low.

In the second group there were 10 cases—8 men and 2 women, their ages ranging from 44 to 76. In 7 of the cases there was a definite history of shock or mental strain, often associated with air raids. The basal metabolic rate was low among those who had had thyroidectomy, high among those who had not. The main line of treatment was thyroid extract for those who had had thyroidectomy, also tarsorrhaphy and plastic operations where necessary.

In the third group there were 4 cases—3 males and 1 female. All had a raised metabolic rate. In two cases there was much improvement after thyroidectomy or deep *x*-ray therapy, and others benefited from rest and operation on the eyelids.

End-results of a Syndrome

Dr. S. L. SIMPSON said that much might be done by a psychiatric approach to the problem in view of the large part which anxiety or shock played in thyrotoxicosis and in exophthalmic ophthalmoplegia. Much had been learned in recent years about duodenal ulcers, extrasystoles, disordered action of the heart, and effort syndrome, and it all seemed to depend upon which part of the tissues of an individual was susceptible to impulses from the hypothalamus and perhaps from the pituitary. He could not help thinking that they were looking at the end-results of a syndrome which could produce such widespread effects. Once aware of the mechanism, they could spend more time on the psychiatric approach.

He put forward a theory which he hoped to have the opportunity of testing in selected cases—namely, that in all these cases there was activity of the thyrotrophic hormone, and in some of them plus thyroxine. He had seen many hundreds of cases of people who had had very large doses of thyroxine, producing sweating and so forth, and he had never seen—though he knew it was reported here and there—exophthalmos of any severity caused by thyroxine alone. He thought that thyroxine must be ruled out as an uncomplicated cause of exophthalmos. If it was accepted that the pituitary thyrotrophic hormone operated both in Graves's disease and in the exophthalmic ophthalmoplegic group, in those cases which presented a different clinical picture the thyroid was incapable of responding to the thyrotrophic hormone. This was not improbable on

clinical grounds, considering that the age of the patients concerned was about 50, and that they were predominantly in males, the thyroid being much less labile in men than in women. The theory could be put to the test by injecting these people with thyrotrophic hormone and watching for a rise in the basal metabolic rate.

Simple and Malignant Exophthalmos

Mr. E. E. POCHIN said that Rundle and he had collected a series of 17 cases of thyrotoxicosis coming to necropsy and had made a full removal of the orbital contents. Among other findings they established that the position of the eye was correlated with the degree to which the orbit was filled post mortem, and that that tissue was increased in the exophthalmic subject. Their diagnosis was that 6 of the 17 thyrotoxic cases had exophthalmos; in all these cases it was a simple exophthalmos, not the so-called malignant type, with oedema of the conjunctiva and chemosis. The position of the eye was correlated with a corresponding increase in the bulk of the retrobulbar tissues, and such increase was due to an increase of fat in the orbital tissues. This change occurred not only in exophthalmos subjects but generally in the whole group.

What was the relation between simple exophthalmos and malignant exophthalmos, in which there were florid and marked changes? Here he thought they should suspend judgment, not coming down at present too heavily on one side or the other. He did not think it could be established that the two were the same condition or different stages of the same condition, but equally it could not be established that the one was essentially different from the other. The distinction between simple and malignant exophthalmos was made at a stage when it was thought that simple exophthalmos was not associated with increase of bulk or with ophthalmoplegia, whereas malignant exophthalmos was so associated. But it had now been shown that there was an increase of bulk in such cases, though it was small, corresponding to the smaller degree of exophthalmos. On the other hand, it was quite clear that there were differences histologically between the simple and the malignant type. In the latter a gross oedema was present which was not found in the former. It was possible that the two were just the mild and the severe stages of a common process associated with increasing bulk of the retrobulbar tissues, and that when that bulk reached a certain stage secondary complications, possibly interference with vascular drainage of the eye, were encountered.

Nova et Vetera

THE FOLK-LORE OF TOOTHACHE

The quinquennial Wallis lecture on the history of dentistry[1] held before a joint meeting of the Sections of Odontology and the History of Medicine of the Royal Society of Medicine was delivered by Dr. J. D. Rolleston on Dec. 30, 1944.

After a short account of the popular aetiology of toothache, in which the worm played a prominent part, the lecturer dealt with the various forms of folk-lore treatment, which he classified as follows: human, animal, plant, and mineral remedies; transfer, hydrotherapy, charms, patron saints, especially St. Apollonia; filling, extraction, and miscellaneous cures. Owing to the wealth of material, as was shown by the extensive bibliography, no reference was made to superstitions connected with discoloration and mutilation of the teeth in savage races, the legend of the Golden Tooth, the toothbrush and toothpick, and the various aspects of dental surgery apart from a brief allusion to filling and extraction. The lecture was illustrated by portraits of Pierre Fauchard, "the father of dentistry"; Peter Lowe, the founder of the Faculty of Physicians and Surgeons of Glasgow; Karl Sudhoff, the historian and author of a history of dentistry; Sir Armand Ruffer, the palaeo-pathologist; and Mr. C. E. Wallis.

[1] *Brit. dent. J.*, 1945, **78**, 225, 257.

H. Ingraham and A. Hesse (*Amer. J. Syph. Gon. ven. Dis.*, 1944, **28**, 733) report a case of transmission of syphilis from a mother to her child *in utero* and from the child after birth to the father by contamination of his conjunctiva.

Correspondence

Bridging the Gap

SIR,—Dr. Ff. Roberts (June 16, p. 848), in common with the late Sir Thomas Lewis and the Goodenough Committee, stresses the importance of the transition from the pre-clinical to the clinical part of the medical course. He places much responsibility on the pre-clinical teacher, but while many of his assertions are individually salutary, there is another way of looking at the question. When the student starts pre-clinical work his mind, so far as the physical constitution of man is concerned, is a blank. In 18 months he must learn the language in terms of which he will think for the rest of his life. It includes not only the names, relations, and derivations of the parts of the body, but a visual or other mental image of the living systems and their interrelations. He is finally supposed to be able to regard a man as a whole, and in contemplating any part of him to see it in relation to its surroundings, and from it to be able to pursue any one of half a dozen physiological lines of thought which must not be confined within the barriers of the "systems" of formal teaching.

To raise the student by any method of teaching from zero to this point in the available time is impossible. He must raise himself, and he must use books, remembering that there is no perfect textbook and there never will be. Whatever the source of his knowledge, whether experiment or the spoken or written word, it is of little value unless he is building it into his own purely personal understanding of the body. The function of the teacher is to give instruction, guidance, and inspiration, always with the aim of fostering this self-reliant approach to facts which students often refer to as a desire to "get to the bottom of the matter"—in other words, to satisfy their own personal criteria of understanding. The aim is qualified by the practical necessity that whatever interest is aroused by a part, the final result must be an understanding of the whole, and the time is limited.

It is pardonable, and even desirable, in pre-clinical teachers that they should employ some diversity of method in achieving this end. I know of none who underrates the importance of bringing the student into the closest contact by way of his senses with the facts he must use as raw material. But many physiological and anatomical facts must be accepted at second hand, and the synthesis of all he knows, including the explanatory application of his previous knowledge of the physical sciences, must be a mental process and personal to the student. The teacher can help him greatly, but he cannot do his thinking and visualizing for him. Much of the raw material which is used in reaching the limited objective of understanding how the body is made and works has no other purpose, though it may serve to inculcate careful habits of observation and reasoning.

I conceive that the Goodenough Committee's emphasis on principles rather than facts, whatever they may mean by the actual words, is an expression of the belief that an understanding of the body as a whole—or perhaps one should say a working knowledge—can be achieved by the use of fewer facts than are now presented. Many clinical teachers believe that the selected facts should be "useful" to the student in his clinical years. There is sufficient truth in these ideas to make them deceptive if seen out of perspective. An attempt to apply them at present may be expedient, but should not be made blindly, or with our vision clouded by lip-service to a thorough scientific training. Medical scientific knowledge will continue to grow and cannot even now be encompassed by the medical student. The real question is whether he should base his understanding of the body on as few or as many facts as possible.

The foregoing remarks bear directly on the transition to clinical work. A man going to live in a foreign country may be equipped with a thorough grounding in the language, or with a phrase book, or with a compound of the two. Only experience can show the influence of previous training on his ability to become a useful citizen. In any event, the mitigation of his difficulties in the first few weeks will depend chiefly on those who receive him, and particularly on their sympathetic

realization that by their standards he is woefully ignorant whatever the system on which he has been taught. Otherwise, the transition is a stimulating experience and not to be feared.

In pointing out the responsibility of the clinical teacher I again emphasize the magnitude of the *main* task of pre-clinical teachers in relation to the time at their disposal. The majority of them carry it out thoughtfully and to the best of their ability and with the knowledge that it is contributory. Some of their machinery, taken out of its framework, is susceptible to ridicule. Many desirable methods involving the use by students of anaesthetized mammals are excluded by law. Good and bad teachers and good and bad research workers are diffused throughout the course, and the sum of their influence defies easy generalization. A realistic approach to the problem of how to educate a doctor should not be too much influenced by the "reality" of his experiences in hospital. His mental scaffolding is also real and cannot rest on that which it is designed to support.

Time is the great enemy to ideals of education, which, as Dr. Roberts points out, alter but little. The nature of the compromise with time may be changed somewhat, may be improved somewhat in relation to a specific purpose, but it remains a compromise. If a more strictly vocational medical course is instituted, opportunity must be provided for some students to study the pre-clinical subjects more thoroughly, and not only in Oxford.—I am, etc.,

Department of Physiology, Liverpool University. W. H. NEWTON.

Generous Gifts from American Medical Women

SIR,—In July, 1940, Dr. Esther P. Lovejoy, chairman of the American Women's Hospital Board of the American Medical Women's Association, sent a cheque for $500 to the British Medical Women's Federation to be used "for the relief of civilians in bombed areas." Further sums were promised, and the Federation was asked to administer the fund. Every month a cheque for a minimum of $500 has been received—always for a larger amount during intensified bombing. In all £12,280 will have been sent to us, for we learn that we are to continue to receive $500 a month up to the end of this year. To commemorate VE-Day we received by cable a special thank-offering of $2,000 to be divided between four named hospitals. In her letter confirming this Dr. Lovejoy writes:

> "It has been a great privilege to be of a little help in our common cause. We are very lucky indeed as a nation to have been beyond the reach of bombs this time, although some little ones from Japan are floating in on the breeze to our western coast. The people in England have suffered continuous casualties for five years, and all we could do was to help them a little."

Throughout the war the money has been used to aid cases of special hardship in bombed areas in all parts of Great Britain and Northern Ireland, in hospitals, institutions, and private homes, and we shall continue to help in this way until the fund is closed.

We have endeavoured adequately to express our profound gratitude and appreciation to our medical colleagues in America, but we feel that this outstanding example of generous and practical sympathy on the part of women doctors over-seas deserves to be more widely known. It will be one of the many bonds of friendship between this country and the United States.—I am, etc.,

JANET M. CAMPBELL,
President, Medical Women's Federation.

Rheumatism and Orthopaedics

SIR,—As an orthopaedic specialist who has for some years been interested in the problem of rheumatism, may I congratulate my friend Sir Adolphe Abrahams upon his comprehensive summary of some aspects of this problem and for the constructive proposals that he makes in his lecture entitled "Rheumatism: Postgraduate Instruction" (May 12, p. 671). As this lecture constituted his opening address at the postgraduate course upon rheumatism at the L.C.C. Rheumatic Unit at St. Stephen's Hospital in March of this year, it may be permissible to draw attention to the fact that ever since its institution and throughout the war this unit has given a course of lectures and practical demonstrations upon rheumatism twice a year, under the auspices of the Fellowship of Medicine, to large and growing numbers of postgraduates, including many doctors from the Services.

May I, from personal experience, endorse the remarks of Sir Adolphe Abrahams concerning the importance of avoiding watertight compartments and the great need for a broad knowledge of general medicine by the physicians who will staff the proposed rheumatism centres. At many clinics physical medicine very properly plays an important part, but the physicians are, in many cases, specialists in different highly technical branches of physical medicine. They can hardly be expected to have the broad outlook and general experience of medicine which are so necessary for the preliminary examination and sorting out of the patients. There is sometimes noticed a tendency for them to pin their faith on the methods of which they have special knowledge and experience to the exclusion of other forms of treatment. It falls to the lot of most orthopaedic and general surgeons to operate upon many patients whose chances of complete recovery have been jeopardized by the delay due to a too ready acceptance of the diagnosis of "rheumatism" as a cause of obscure pain. The suggestion, therefore, that a thorough grounding in general medicine should precede the more specialized training in rheumatic diseases seems to me to be admirable. It would be valuable also if, in the staffing of the new centres for rheumatism, the medical director and a good proportion of the medical staff were men engaged in general medical consulting work, preferably at the hospital to which the rheumatism centre is attached.

As an orthopaedic specialist I note with satisfaction the importance that Sir Adolphe Abrahams attaches to the orthopaedic aspects of rheumatism. The large numbers of cases of terrible deformity which are far too often seen testify to the fact that the orthopaedic aspects of rheumatism, and particularly the prevention of deformity, are not yet sufficiently appreciated in many quarters. The formation in 1942 of a Joint Committee of the Empire Rheumatism Council and the British Orthopaedic Association, one of the objects of which is to stimulate closer co-operation between physicians interested in rheumatism and orthopaedic specialists, should do much to remove this reproach from British medicine.

In the average rheumatic sufferer the orthopaedic aspects are never less than equal in importance to and often transcend the purely medical. This particularly applies to chronic cases in which the disease has "burnt itself out" and left stiffness and deformity. Such cases are almost 100% orthopaedic. Yet often such patients are referred to the physician and remain under his care for long periods when what is really required is expert orthopaedic treatment. It is of the utmost importance, therefore, that every new rheumatic centre should include a well-equipped orthopaedic department, and an adequate number of orthopaedic beds should be provided. The orthopaedic surgeon should have regular visiting days: the practice of referring cases to him at some other hospital does not make for the intimate co-operation that is essential. Orthopaedic specialists, as Mr. Capener observes (*B.M.J.*, May 26), occupy a kind of borderland between medicine and surgery, and their province includes not only the treatment but the prevention of deformities. However, at many rheumatism centres although the advice of the orthopaedic specialist will often be sought in difficult cases, prevention will be the concern of the physician. The latter should be thoroughly versed in the principles of deformity prevention and in the technique of the application of plaster casts, which are often invaluable. He should be familiar with the optimum positions for joints, with methods of extension and injection and other medical orthopaedic measures. When deformity has occurred the advice of the orthopaedic surgeon should be sought without delay; every day that passes makes specialized orthopaedic treatment more difficult and success more problematical. Manipulation of stiffened arthritic joints under anaesthesia is a method of the greatest value in carefully selected cases, but this work is highly technical and *cases requiring manipulations under anaesthesia should always be referred to the orthopaedic surgeon.*

What does Sir Adolphe Abrahams imply by the term "orthopaedic physician" which he prefers to that of "rheumatologist"? I share his dislike of the latter term, which calls to mind the "watertight compartment" mentality, but if the

implication is that the "orthopaedic physician" is one who specializes in the prevention of deformity, plaster work, etc., are we not encouraging an even more narrow sphere of specialism? Would such an ultra-specialist be likely to acquire that broad outlook on disease which Sir Adolphe Abrahams in the rest of his lecture so cogently advocates?—I am, etc.,

London, W.1. A. G. TIMBRELL FISHER.

The Edinburgh Outbreak of Smallpox, 1942

SIR,—I was very much interested, in a surprised sort of way, to read the article under the above title by Dr. C. Killick Millard (March 3, p. 304). My surprise and interest were all the greater when I realized that Dr. Killick Millard holds the same epidemiological ideas about vaccination which he apparently formulated about half a century ago.

Dr. Millard's interpretation of his classification of the 36 cases of smallpox which occurred in this Edinburgh epidemic into weeks is, from the epidemiological point of view, quite erroneous. It is well known that it is quite impossible to stop an outbreak of smallpox, where, as practically always is the case, the first cases are picked up in the course of ordinary medical practice, which means that there are a large number of contacts, under a minimum period of six weeks, for these reasons:

1. Protection by lymph vaccination against smallpox cannot be assured unless the individual exposed to smallpox has been successfully vaccinated at least 14 days before such exposure. Hence the occurrence of smallpox among persons vaccinated (even quite successfully) *after* exposure.

2. It takes at least one week even in the best organized of communities for a sufficiently large number of persons to be successfully vaccinated (that is, to develop an immunity against smallpox)—and it must be remembered that quite a large proportion of persons vaccinated do not "take" on the first vaccination or revaccination as the case may be—to put an effective check on the spread of the outbreak.

3. After this period sporadic cases of smallpox must be expected for a further minimum period of three weeks.

4. It is not necessary for a particular population to be 100% successfully vaccinated to stop an outbreak of smallpox in a community provided with doctors on the lookout for smallpox, ambulance, isolation hospital, and disinfection facilities, as Edinburgh is.

Of course, if the first case is discovered early—say on a train or in a ship—vaccination of all immediate and possible contacts may be all that is necessary; but I consider that the 1942 Edinburgh outbreak was handled in the only way possible, and because of the correct approach to it by the city health authorities it went "according to plan." That is to say, 25 cases occurred up to date when mass vaccination was begun—i.e., during the first week of outbreak as diagnosed—9 cases occurred during the immunizing period of 3 weeks, and only 2 cases during the sporadic period. The deaths from post-vaccinal vaccination are regretted, but the deaths from smallpox would have been very much greater had not the population of Edinburgh been quickly and adequately protected by the measure of mass vaccination undertaken by the health authority.

The statement that "the less vaccination the better so long as we can achieve our object, which is effective control of smallpox," is quite meaningless, and one which no health officer in his right senses would even for a moment consider. The psychological effect of mass vaccination is, as Dr. Millard says, an important factor. My experience has been (and this is pretty general) that a good "take" has a marvellous effect on settling the nerves of a jumpy community, the fear of contracting smallpox being infinitely greater than the possible discomfort of a sore arm (even if it puts the patient to bed for a few days) or even of the possible contracting of post-vaccinal encephalitis.

Of course, there are always those unhappy persons who regard as a species of personal martyrdom what ordinary people take in their stride, and whose unreasoning and ignorant selfishness makes them perfectly willing to shelter behind the protective care of others. I have yet to see the conscientious objector to vaccination offering to nurse in a smallpox hospital or even to help vaccinate smallpox contacts. These peculiar gentry always manage to keep well away from danger but are loudest in their criticism of those who face it!—I am, etc.,

Assistant Health Officer, Union Department of Public Health, Union of South Africa. A. L. FERGUSON.

Wanted: Prophylactic Vaccine for Typhus

SIR,—In connexion with the danger of an epidemic of typhus arising as a sequel to the terrible war that has just been waged in Europe, I would like if some of the readers of your widely circulated *Journal* could inform me what exactly is the best prophylactic for typhus, together with the name and address of the manufacturers, the best method of administering the prophylactic, and the actual cost. This information is necessary so that some of the prophylactic may be obtained for the County Louth Health Department for use in the event of an outbreak.

There has, I may add, been only one outbreak of typhus in the past 20 years in County Louth, which occurred in 1939. There were five cases in all and three deaths, giving a case mortality of 60%, which is something close to the usual mortality rate met in most outbreaks of typhus exanthematicus. The amazing feature about the County Louth outbreak of typhus (1939) was that it was proved pretty conclusively by the then M.O.H. for the county, together with an inspector (medical) from the Department of Local Government and Public Health, that the cause of the outbreak was the wearing, by those attacked, of clothes which they had taken from an old trunk where they had been stored for some time and which belonged to people who experienced an attack of typhus a considerable period before 1939.

With regard to the suggestion that rickettsiae bodies survived for a long time in the clothes contained in the trunk, thus bridging a prolonged interval between two outbreaks, is this possible? Or is it more likely that there might have existed a reservoir in the domestic rat, transmission from rat to rat being by the agency of the rat flea, and when the flea was hard put to it to find a new host he bit man, and in this way the outbreak occurred?

So far as I am aware the prophylactic vaccines used in typhus are: (1) that prepared by Durand by propagation on the mouse lung of the rickettsiae; (2) Weigl's vaccine, which consists of killed rickettsiae, prepared by injecting the anal aperture of the louse with *Rickettsiae prowazeki*, and allowing the organisms to multiply for a week, the lice being fed during the intervening period on immune subjects: the lice are then crushed in phenolized saline; (3) vaccine prepared by Cox by growing the rickettsiae on the yolk sac of the developing chick embryo.—I am, etc.,

Public Health Department, Dundalk, Eire. JOSEPH FAHY.

Attenuation of Measles

SIR,—It has been said that the age of 5 years forms a sharp dividing line between measles as a menace and measles as a nuisance, and for the general practitioner, who, in the main, has to deal with epidemics of measles, the very vital question arises whether there is a practical method of attenuating measles in the dangerous period up to the age of 5. In describing such a method, which is simple and often practicable, I am fully aware of the vast amount of work that has been done in the prevention of measles by convalescent serum, pooled adult serum, and serum globulin, but a remark recently in the *Journal* (March 3, p. 300) leads me to stress the importance of the following method, for which, of course, I do not claim originality.

In a general way the children of a family escape measles until the eldest goes to school at the age of 5. Within two or three years this child usually contracts measles. It has been my practice now for some years to inject 8 to 10 c.cm. of whole blood from one of the parents intramuscularly into the younger child or children. After a considerable experience of this method I am prepared to say that one can look forward with confidence to an attack of measles in the younger children so attenuated as to be trivial to a degree. The cough is slight or absent, as is the febrile state, the rash is trivial and fleeting, there is no conjunctivitis as a rule, and it often seems a farce to keep the patients in bed, if indeed they so consent. Admittedly, the degree of immunity conferred varies, but that matters little if attenuation is considerable. A few points deserve mention:

(1) The dose of blood should be given to the juniors as soon as the rash occurs in the older child; 8 to 10 c.cm. is adequate. (It used to be said that 10 to 20 c.cm. was necessary.)

(2) The donor parent obviously must have a definite history of measles.

(3) No blood grouping or matching is necessary.

(4) In a family, the very high susceptibility to measles is here an advantage. One *knows* when the attack is coming in the inoculated though the incubation period is prolonged.

(5) Lasting immunity is believed, on good authority, to follow an attenuated attack.

(6) It is sometimes possible to use some whole blood from an older child previously protected by an attack. In such a case 5 c.cm. or less should be given. It is more likely to cut out the attack altogether.

(7) The great advantage of whole blood is its simplicity and its immediate applicability, and, further, it is much more likely to secure attenuation only than convalescent serum. I do not, of course, deny the value of complete prevention in certain cases.

(8) There has been no general reaction to the blood injected, and only slight local tenderness.

During the epidemic since October last I have notified 92 cases of measles. I have injected blood in 25 contacts: in 23 cases from parents, in 2 from protected older children of the family; 14 had definite but much-attenuated measles. The most pleasing feature was that the cough was absent or slight, except in a child subject to croup, who developed croup. One child had a profuse rash and conjunctivitis, but a trivial illness and coughed for one day. Eight children had no attack; four of these were under 1, and may not have had true exposure to infection. The other three ought, by all the rules, to have had an attack.

During recent weeks letters have appeared in the *Journal* advocating the routine use of the sulphonamides in uncomplicated measles at the outset. The indiscriminate use of such potent drugs, not incapable of doing harm, in a brief self-limited febrile illness where defervescence occurs spontaneously in a few days, hardly appears in accord with sound therapeutic principles. It is rather like cracking a nut with a sledge-hammer. Surely, it would seem more rational to reserve these drugs for possible complications. The reasons given for their routine use appeared singularly unconvincing, especially as, as Dr. L. G. Jacob pointed out, no attempt seems to have been made with controls.

In this connexion it would not seem out of place to mention that in my 92 cases the four complications were two cases of acute laryngitis, one bronchopneumonia, one possible case of glandular tuberculosis (not proved). There were no deaths. I would make no claim, of course, to any special treatment except in those cases where attenuation was secured.—I am, etc.,

London, N.W.7. A. H. MORLEY.

Artificial Respiration in the Newborn

SIR,—The need for artificial respiration in the newborn is an emergency which faces all doctors with fair frequency. The method of applying the mouth to the infant's mouth with a napkin intervening is commonly used. With this method one has assurance that air is really entering the lungs of the child. The method can be more conveniently applied by means of a small (infant-size) anaesthetic facepiece, with a flexible tube attached, the end of which can be held in the operator's mouth. I have had one of these made with a metal mouthpiece which can be easily held by the teeth.

This contrivance has the advantage of enabling the operator to stand in a comfortable position and to observe the patient. The mask, which has a pneumatic-cushioned edge, is held in close apposition to the child's face over mouth and nose. Needless to say, before the apparatus is used the presence of mucus is dealt with in the proper manner. To facilitate drainage this method can be applied with the child in the head-down position.

I should be interested to learn if this very simple idea has been found useful in the experience of others.—I am, etc.,

Rhayader. J. POOLE.

Painless Childbirth

SIR,—We have long felt that experienced obstetricians should be grateful to Dr. Grantly Dick Read for his valuable contributions to an understanding of the care and control of a woman's emotions before and during labour. We would like, however, to comment on two of the statements in his letter in the *Journal* of June 2 (p. 784).

He asks: "Do scientific and biologically minded men, even though they have no particular philosophy, really accept without question that the most desirable experiences of a woman's life and her obvious natural urges are rewarded in their ultimate perfection by an ordeal of pain and danger?" In our opinion the answer is unquestionably, Yes; and this view is upheld by a study of reproduction throughout the whole animal world. So far as we know no species of mammal is immune from the dangers of reproduction. Anyone who has witnessed a cow or mare in the process of giving birth to its young would never question whether it is a painful process, and a study of the evolution of reproduction will reveal abundant evidence that Nature is meticulously careful with the preservation of the species while she is often ruthless with the parent. Surely it is more true to say that pregnancy is a healthy process from the point of view of the race rather than of the individual. When the mammalian scale is reached and the egg is retained in the maternal body during its development, it is hardly surprising that a strain is thrown on the maternal organism, which now has to supply all the needs of the foetus.

The second point we wish to comment on is what Dr. Grantly Dick Read considers to be normal labour. We have all heard of the primitive races to whom childbirth is almost a painless function. But these people belong to a pure racial type in whom the shape of the head and the types of pelves are almost a constant. We, however, have to deal with a very hybrid race. Between the various classical types of pelves, we meet with every graduation and combination of types. And, of course, the foetal head will show an almost equal variation of shape and size. It is hardly surprising, therefore, that the slight deviation from normal is a very common occurrence. We presume that Dr. Grantly Dick Read would not expect such cases to be "quite painless."—We are, etc.,

R. CHRISTIE BROWN.

London, W.1. E. R. REES.

Women in Labour

SIR,—A careful reading of the correspondence on women in labour added to one's own experiences of maternity work in a rural practice, where time is always pressing owing to the distances that have to be travelled, leads to the conclusion that some 90% of women in labour desire and require analgesia terminating in anaesthesia. This, to my mind, can only be achieved, short of the introduction of some new drug, by either: (1) the invention and introduction at a reasonable price of some new mechanical inhalation machine which is 100% foolproof for self-administration under a nurse's supervision, as is the Minnitt, and which is, unlike it, 100% effective in 100% of cases; (2) the attendance for a minimum of 8 hours of an anaesthetist.

As to (1), it should not be beyond the wit of man to produce such a machine sooner or later. But as to (2), there are two governing factors that for many years seem insuperable: (i) Medical man-power. (ii) The fees that any anaesthetist would rightly require for such attendance would be beyond the reach of the vast majority of the patients who require his services, and would also preclude any national maternity service from employing practitioners in such capacity, for obviously no man could average more than 5 to 6 cases weekly.

Only in one way can these two apparently insuperable difficulties be solved, and that is by the recruiting and training of a body of "unqualified" anaesthetists for maternity work. There are many branches of medicine where doctors rely exclusively on such medical auxiliaries, without whose work much could not be accomplished—such as laboratory and radiography technicians—and once the inbred conservatism that is always manifested towards the unqualified be overcome, there is nothing revolutionary in the idea, except, perhaps, the ends to be gained.

After a training period of 2 to 3 years, which should include a good grounding in biology and physiology with a far longer practical training in anaesthetic administration than the medical student ever obtains, there would be to hand a body of auxiliaries available for the long hours of attendance requisite in maternity work, and who, owing to the much shorter training period undergone as compared with the doctor, would be willing to receive fees at a much lower rate than the qualified

anaesthetist. One proviso I would add—namely, the administration of such auxiliaries be limited entirely to inhalation anaesthesia and to maternity work alone.

To the many obvious and justified criticisms that will and can be levied against this suggested scheme, three questions can be posed at once: (1) How else is the demand of women in labour to be met? (2) Does not the competence attained by many district midwives with "rag and bottle," after somewhat sporadic training by the local practitioner, augur well for what could be done after 2 to 3 years' special training? (3) Who, with the exception of the specialist anaesthetist, gives a better gas-and-oxygen anaesthesia than the average dentist? —I am, etc.,

Lincoln. SIDNEY WRAY.

SIR,—Some years ago now a mother nearing the end of her second labour told me that in her first labour I had given her chloroform, and asked that she should feel all that a woman could experience on this occasion. She told me later that the feeling of the child slipping out of her was the most satisfying thing in her life. Some time ago a woman consulted me about the sickness of pregnancy, and when I told her that this was out of date now, she replied that she had read a book which said pregnant women were sick, so she was. I told her that happy pregnant women were not sick, so she stopped being sick at once.

The point I am making is that mind affects matter. The doctor who says "the penalty for a normal labour is having to go through hell unaided," and talks about labour as "an unforgettable nightmare," will surely have a lot of troublesome women who need a whole lot of anaesthetics and analgesics. Surely the average woman, if correctly trained mentally and if protected from "folk," is well able and willing to deal with an average labour without a lot of analgesics and anaesthetics. This is not sadism, but common sense and experience. If a woman is unduly sensitive to pain, or if the labour is abnormal or prolonged, then help will be required. Pethedrine fills a gap in our needs, and is worthy of wide recognition and use.

But I cannot help thinking that the secret of easy midwifery is small babies. I have found the induction of labour by castor oil, quinine, and pituitrin safe and good; but it does not always work. One hesitates to rupture the membranes without some very definite indication for induction. If, therefore, someone can discover for us something that will start labour off easily, surely, and safely he will be doing the cause a great service, for then we need have no large babies and less tiresome midwifery, and, incidentally, there will be less need for analgesics and anaesthetics in labour.—I am, etc.,

Rotherham. ERIC COLDREY.

SIR,—I read the letters on women in labour with interest and would like to add my word to that of Mrs. Jean Sutton (June 9, p. 823) on the subject of normal labour.

Before the birth of my first child, 21 months ago, I read *Revelation of Childbirth*, by Grantly Dick Read. I have had no medical training, but I concluded that his arguments were sane and sound. Regular and recognizable contractions began at 5 p.m. on the day my baby was due. They caused me no pain, and I was unafraid. At 10 p.m. I retired, and, relaxing completely, fell asleep. I awoke at 4.30 a.m. with a strong contraction, and the midwife was sent for. Contractions were then occurring at four-minute intervals and the midwife was puzzled at my "light-heartedness." At about 5.45 a.m. I experienced some discomfort with each contraction. On entering the second stage and pushing hard, however, the discomfort ceased entirely. My baby was born at 6.40. Unfortunately the practitioner who attended me mistook my refusal of anaesthetic to be due to some religious obligation and thought I was intent on "suffering unnecessarily," so that after a rather undignified battle, during which the head crowned, I was obliged to breathe through the wretched chloroform mask.

My second child is due in a month's time. I am not a brave woman, neither am I insensitive to pain (a visit to the dentist makes me feel sick with apprehension and very dry in the mouth), but I look forward with great joy not only to seeing and holding the new baby, but to bearing it. I think that to a woman who has been instructed on the conduct of labour and is free from fear normal childbirth is a supreme experience, and I appeal to all doctors to help, and not to hinder, more women to find it so.—I am, etc.,

GWENDOLINE ROWNTREE.

Caudal Analgesia

SIR,—I have just received by air mail a cutting of Prof. F. J. Browne's interesting letter on continuous caudal analgesia (May 26, p. 746). I would like, if your space permits, to make a few further observations.

First, it is consoling to find that in this quarter obstetric analgesia is being followed and carefully assessed. On the other hand Prof. Browne quotes in support of his views and presumably therefore concurs with this statement: "The use of such a hazardous procedure . . . to relieve the *usually innocuous pains of labour* [my italics]." This remark so well illustrates the point I wish to make in the opening paragraph of my original letter that further comment (except perhaps from those who have borne children) is superfluous.

Criticism of the alteration in mechanism of the labour leading to a more frequent use of forceps is, of course, valid; it should be mentioned, however, that in the great majority of cases this involves only the low outlet forceps to bring the head over the perineum. This procedure is, I believe, devoid of risk to mother or baby under proper conditions. Dr. Hingson has emphasized (accounts in the popular press very naturally do not represent his views) that this method is applicable to patients under good hospital conditions, and then to only 75% or so of these for this and other reasons. This proportion in a widely constituted and well-equipped maternity service would represent a very large number of patients benefited.

It is not denied that fatalities have occurred, as evidenced by the cases referred to by Prof. Browne; the salient question is, surely, whether these were avoidable and could be corrected by variation of the technique, or intrinsic in the method—e.g., the case of sepsis, an obviously controllable factor. Reference to the inception of any method of anaesthesia will lead to at least as startling an array of discouraging facts. More difficult to explain than these early mishaps would be the figures, which I shall hope to provide, of the latest large series without them, if one is to start with the assumption that the method is dangerously unsound.

As my address and the demobilization plans of the Navy will explain, I am not in a position to provide the references for the positive side of the picture immediately, but I hope to obtain them before they are too late to be of interest. I should be very pleased to have Prof. Browne's further comment on them; my own experience is so small and my ignorance so large that I cannot without these references offer him any more immediate "cannon fodder."—I am, etc.,

T. B. FITZGERALD,
Surg. Lieut.-Cmdr., R.N.V.R.

Obstetric "Specialism"

SIR,—I fear to tread the path where the controversy on women in labour has led, but I must agree with the principles enunciated by Dr. E. K. Mackenzie (June 9, p. 823), where he says "it would be a good thing if many of these 'Fellows' spent two or three years under the supervision of a competent G.P. before being permitted to proceed to hospital for special experience." Criticism of our colleagues and institutions is sometimes unpleasant, but it is frequently healthy, helpful, and democratic; and so I agree with his stricture concerning "the variety of stillborn infants, etc." While at probably the best-known maternity institution in the world I did a short course in midwifery a few years ago, and I witnessed the arrival of stillborn babies, who, in my judgment, would have been saved by a low-forceps delivery; but this would have increased the forceps rate, the record for which low rate was held by another institution.

I disagree, however, when he says that midwifery "is that department of medicine where diagnosis is easiest." Surely not! This is too sweeping a statement.—I am, etc.,

Swansea. L. W. HEFFERMAN.

Sex Dispersion of Intelligence

SIR,—On reading the article on the difference between the sexes in dispersion of intelligence by Dr. J. A. Fraser Roberts (May 26, p. 727) I recalled some investigations in America

that were carried out by Prof. E. L. Thorndike over 40 years ago. His conclusions were identical with those of Dr. Fraser Roberts—i.e., that while there was no marked difference between the average intelligence of boys and girls the individual differences in boys were greater than those in girls, and that greater extremes of brilliance or dullness were to be found in boys than in girls. I quote from the only publication that I remembered:

"Such statistics as I have been able to secure give measures in 26 objective tests, with from 100 to 1,500 individuals, and in 25 records of school marks with from 60 to 1,000 individuals" (page 114).

"These facts make it extremely probable that, except in the two years nearest the age of puberty for girls, the male sex is slightly more variable. From the time of puberty for boys to maturity this difference seems to increase rapidly . . . it proves conclusions about the capacities of the sexes in general based upon the comparison of the extremes in both cases to be certainly risky and probably false. For instance, suppose that we picked out the hundred most gifted intellects from a million men and a similar 100 from a million women. Even if in both sexes the average intellectual ability was identical we should, if the variability of women was 95% of that of men, probably find no woman of our hundred who was equal to any one of the 100 men" (p. 115). (*Educational Psychology*, by Edward L. Thorndike, Lenke and Buchner, New York, 1903.)

—I am, etc.,

London, S.W.3. MORRIS CUTNER.

Electro-convulsive Therapy Apparatus

SIR,—Perhaps you will permit me to make a few technical comments on the small portable electro-convulsive therapy apparatus described by Dr. A. Spencer Paterson (May 12, p. 666).

In *Recent Advances in Neurology and Neuropsychiatry* (London, 1945) the authors state with reference to E.C.T. apparatus that "any apparatus constructed on sound electrical principles that can deliver exactly the required voltage for an exact period of time measured in 1/10th of a second is suitable for the work." They might have added to advantage that an E.C.T. apparatus, as is the case with all electro-medical apparatus, should have a margin of electrical safety to justify the use of the term "foolproof." It is because, in our opinion, the apparatus described by Dr. Paterson falls down on all the above-mentioned desiderata that I venture to trespass on your space.

It seems to me that the designers have sacrificed efficiency and safety to considerations of weight, space, and cost. The following are the main points which demand criticism:

1. The earthing of one side of the patient is very unwise, as Leduc pointed out some 30 years ago. Earth-free patients' circuits have been stipulated by electrologists as the only reasonable security against accidental electrocution due to faults, and it is not for nothing that this practice has been adopted by specialists for so many years now.

2. A good transformer delivering the calibrated voltage accurately on load has to be built on liberal lines if it is to avoid bad regulation, and the tempting overall weight of 11 lb. implies an insufficient transformer core. Besides, to cover 70 to 150 volts in only seven steps is, in my opinion, too coarse a control. Moreover, with good voltage regulation very much shorter dosages than are possible with this clockwork timer should be used, 0.1 to 0.3 sec. to make good E.C.T. practice. Times exceeding this at voltages between 70 and 150 represent an overdose on 95% of cases and invite convulsion trauma.

3. The omission of a time-loaded fuse in the patients' circuit seems to invite trouble if any faults are encountered in the set-up of patients' leads.

4. As regards the timer, clockwork devices of this type suffer from fatigue and are unsuitable for the short timing necessary, and, moreover, the range should extend from 0.1 sec. An electronic or condenser switch with an interlock to prevent the possibility of prolonged shock with its fatal complications is the correct method of approach.

5. The threshold of sensibility for the most sensitive patients is about 200 microamps A.C. 50 cycles. Why, then, use currents for measuring up to 1,000 microamps? And why not use a straight-line calibrated bridge circuit which is much easier to read?

The observations are made in view of the fact that few psychiatrists who make good and legitimate use of E.C.T. have much knowledge of the electrotechnical principles involved in the construction of the apparatus which they employ. It is important, then, to have guarantees of safety, accuracy, and efficiency.—I am, etc.,

D. P. MEDHURST, S.M.I.E.E.,
Member of the Electrical Power Engineers Association.

London, W.C.1.

Aborting the Common Cold

SIR,—The method tried by Dr. W. Edwards for aborting colds by inhaling chlorine gas (June 2, p. 785) seems to be useful mainly for colds starting in the nose. But for one common site of onset, the pharynx, which is injected and feels "sand-papered," nasal inhalation is not likely to be effective. This type may respond to frequent paintings with antiseptics, or with plain glycerin—also effective sometimes for a post-nasal onset. The rare type beginning with a painful area in the trachea just above the manubrium I have found sometimes can be aborted by a few treatments with short-wave diathermy to the neck. Patients have their own remedies, as a patient I knew who could almost always abort a cold by going to bed and taking a dose of warm castor oil; and another who could cure his colds in one day by sitting before a very hot fire (whatever the weather) and drinking several bottles of beer!

One of the simplest and surest remedies for colds beginning in any site is the one I described in the *Journal* of March 5, 1932 (p. 449). The essential is to gargle with water as hot as can be borne for a few minutes every quarter of an hour or so for an hour or two. Antiseptics may be added to the water, but the heat is the essential. It acts probably by activating the lymphoid immunity tissues in the tonsil and Waldeyer ring. It is also a help if, at the times of gargling, the arms up to the elbows are placed in very hot water for a few minutes (and the feet, if they are chilled). Adjuvants are hot drinks, nasal sprays, or snuffs, and a minimal erythema dose of ultra-violet light to the chest, back and front.

Colds are like fires: the easiest and most certain time to put them out is at the earliest onset, but prompt action is essential.—I am, etc.,

London, W.1. J. H. DOUGLAS WEBSTER.

SIR,—I am very interested in Dr. W. Edwards's discovery (June 2, p. 785) of treating catarrhal respiratory conditions with gaseous inhalants of acid character. A similar treatment was well known about twenty years ago in Germany, under the name of Prof. Kuhlenkampp's acid therapy. The professor, a non-medical man, had found that the labourers in his factory, where a certain amount of hydrochloric or sulphurous acid was in the air, did not suffer from affections of the respiratory tract. This was ascribed to the acidity of the air. The method was subsequently elaborated; a whole book was published about it with many diseases on the list, but as it required an inhalation chamber it was not easily applicable in private practice. If Dr. Edwards's method be usable anywhere it might be helpful in a number of diseases.—I am, etc.,

Bristol. B. BANETH.

Intestinal Obstruction from Ingested Dried Fruit

SIR,—The five cases of intestinal obstruction caused by ingested fruits reported in the *Journal* of May 26 (p. 734) encourage us to ask for the hospitality of your columns for the report of this case of obstruction.

A stout woman aged 59 years, a typical "Piccadilly flower girl," was admitted complaining of abdominal pains, vomiting, and constipation of two days' duration. Her tongue was dry, furred, the abdomen was distended, with no localized tenderness. There was a firm, irregular scar in the right lower abdomen after appendicectomy 32 years ago; provisional diagnosis was made of small-intestinal obstruction due to adhesions. At operation some large adhesions were found and divided, but this did not reveal the actual site of obstruction. Systematic inspection revealed a firm, yellowish, ovoid mass, measuring 6½ cm. by 2½ cm., obstructing the lumen of the ileum about two feet from the ileo-caecal valve. Its removal led to relief of obstruction and uneventful recovery. The foreign body proved to be half a dried peach, which had been soaked in water overnight but which had been swallowed without mastication.

We consider that, owing to the increasing consumption of dried fruit, the general public should be advised to prepare and to masticate them properly; and in view of the number of cases already reported, this aetiology of acute intestinal obstruction should be more readily considered in the differential diagnosis.

Our thanks are due to Mr. K. F. D. Waters and to our medical superintendents for their advice and permission to publish this report.—We are, etc.,

J. L. COLES.
A. BECK.

St. Mary Abbots Hospital, Kensington, W.8.

Belsen Camp

SIR,—My attention has been drawn to an article in your issue of June 9 (p. 814). In the interest of accurate recording it is felt that Dr. Collis should be aware of the following facts:

(1) The typhus area including Belsen Camp was uncovered by the 11th Armoured Division during April 15 and not April 17 as his account suggests.

(2) The first individual to enter the camp was the Divisional A.D.M.S., Col. D. Bluett, who went in about midday on April 15.

(3) The first medical unit began work in the camp at approximately 4 p.m. on April 15. This was the Divisional Field Hygiene Section.

(4) Incidentally this unit was the only medical unit working there until April 18. It spent the first two days completely within the wired enclosure, and during the first 24 hours the S.S. men were still in control of the camp.

(5) It was due to the foresight of Col. Bluett that supplies of A.L.63 and disinfectant were available for this initial effort. Up to the afternoon of April 18, when another Field Hygiene Section came up, some 15,000 inhabitants of the camps had been deloused.

(6) The fact that the 11th Armoured Division provided some troops, water-carts, the greater part of its hygiene section, and its whole laundry and bath unit, while active operations were being carried out, is deserving of mention in any account of Belsen.—I am, etc.,

F. R. WALDRON,
Major, R.A.M.C.

76 (Br.) Field Hygiene Section, B.L.A.

Alien Doctors

SIR,—Major Stallard in his letter voices the opinion of all the doctors with whom I have personally come in contact during the past few years. I do not exaggerate when I say that the position with regard to what Major Stallard euphemistically refers to as Central Europeans is galling. I have myself offered my services, free and without prejudice as to their continuation after the war, to two hospitals in the Midlands. One of these did not deign to answer my letter. By the other I was told that the acceptance of my offer might prejudice the position of returning officers. Meanwhile "Central European" doctors and other strange importations were given the jobs. *Quousque tandem?*—I am, etc.,

WM. A. O'CONNOR.

Kingswinford.

Oxford and Cambridge University Parliamentary Constituencies

SIR,—In order that as many electors as possible may be able to register their votes at the forthcoming election, I shall be obliged if you will allow me, as Registration Officer for the Cambridge University Constituency, to draw the attention of the electors to certain points of procedure. It should be noted that what follows does not apply to persons for whom proxies have been appointed, or to those who have applied for registration as Service postal voters.

Voting will not be in person, but by means of voting papers issued by the Vice-Chancellor as Returning Officer. They will be posted to electors by June 29. It will help to secure the earliest possible delivery of voting papers if every Cambridge University elector who has reason to think that his permanent address is not that which appears in the University Parliamentary Register will write at once to me at the University Registry, Cambridge. An elector who wishes to vote and has not received a voting paper by July 3 should write to me immediately giving the address to which a voting paper is to be sent to him.

I have been asked by the Oxford University Registrar to say that a similar procedure should be followed by electors of the Oxford University Constituency. They should communicate with him at the University Registry, Oxford.—I am, etc.,

W. W. GRAVE,
Registrary, University of Cambridge.

Obituary

N. BISHOP HARMAN, F.R.C.S.

We have received the following tribute from W. A. D.:

The death of Mr. Bishop Harman removes one to whom the nation owes a debt of gratitude for his eminent services in promoting the care of the eyesight of the population. It was 45 years ago at the beginning of the present century that Mr. Brudenell Carter, after a visit to some of the London Board schools, pointed out in a letter to the *Times* how much of the efforts of the teachers was nullified by widespread unrelieved defect of vision among the school-children, many of whom appeared to be semi-blind. This letter produced notable results. The School Board in 1901 instituted the regular testing of the children's eyesight by the teachers and appointed six "oculists" to supervise the tests. Mr. Bishop Harman was one of the six. Thus began an association with the Education Authority which produced far-reaching and beneficial results. With the sympathetic support of Dr. James Kerr, who was later appointed chief medical officer to the Board, Harman proposed numerous reforms which were duly carried out. Fine work hitherto practised in infants' schools was abolished; so were slates and pencils. Sewing by artificial light in girls' departments was prohibited.

When the London County Council took over the work of elementary education Harman was appointed ophthalmic consultant. The presence in the ordinary schools of a number of children with high myopia for whom the ordinary methods of education were harmful led Harman to the conclusion that it was necessary to establish separate classes or schools with a curriculum and teaching methods specially devised to meet their needs. The first such school was established under Harman's supervision in 1908; and within a short time the whole of London was provided with special "myopic" schools, or, as they were later and better called, "sight-saving" schools. Harman himself devised special desks and apparatus for these schools, and it was due to his energy and drive that they became successful. His methods were adopted in large provincial centres and were followed enthusiastically by our transatlantic cousins. The lighting, both natural and artificial, of schools of all types was also a question which Harman made his own, and he was instrumental in securing the adoption of greatly improved standards. He also paid close attention to the type of school books, for which he formulated standards which were largely followed in school practice.

There is thus no part of the field of ocular care which Harman has not illuminated by his genius and knowledge, and it is not too much to say that the diminution of blindness and partial blindness from preventable causes in childhood has been greatly helped by his work.

The death, at the age of 59, of ROBERT SHARP LAWSON, F.R.C.S., senior surgeon to the Leicester Royal Infirmary, has deprived his colleagues of one whom they regard as one of the most distinguished surgeons who has ever served on the staff of that institution. Born at Blackford, Perthshire, he received his medical education at Edinburgh University, where he had a brilliant career. After qualifying he became house-surgeon to Sir Harold Stiles, for whom he acted for a time as private assistant. He became R.S.O. to the Dreadnought Hospital, Greenwich, relinquishing that post to join the Navy, in which he served from 1914 to 1918. After the war he spent some months working with Sir Robert Jones in Liverpool, thereby laying the foundation of a lasting enthusiasm for orthopaedic surgery, which was to prove of signal benefit to the hospital where his life's work was to be done. He was appointed to the Leicester Royal Infirmary in 1919, and quickly established a reputation, both in general surgery and in orthopaedics. He was really the founder of the orthopaedic and fracture service which has developed into such an important and efficient department. He was an original member of the Provincial Surgical Club of Great Britain, of which he was secretary for two years and in which he always took a keen interest. His colleagues and the medical profession over a wide area, and very many house-surgeons who had the privilege of working with him, will always remember him as a most gifted surgeon and a valued consultant; but they, and many surgeons all over the country, will also particularly recall his courteous and polished manner and his remarkable gifts of friendship and hospitality. Shortly before the war an attack of coronary thrombosis compelled him to rest completely for six months. He returned to work at the outbreak of war with restored health and vigour, and, though he must have been well aware of the risk of a recurrence, he faced and coped with the increased work and responsibility of the war years.—T. C. C.

Mr. CLAUDE DOUGLAS, consulting surgeon to the Leicester Royal Infirmary, died at Oxford on June 9 in his 93rd year. The son of James Douglas, M.D., he was born at Bradford in August, 1852, and studied medicine at St. George's Hospital, qualifying in 1873. He obtained the F.R.C.S. in 1888, after having been surgeon to the Leicester Provident Dispensary for seven years. Mr. Douglas was honorary surgeon to the Leicester Royal Infirmary from 1886 to 1911. During the last war he served as lieutenant-colonel, R.A.M.C.(T.F.), on the staff of the 5th Northern General Hospital, Leicester. He held office as president of the Midland Branch of the B.M.A. in 1901 and as vice-president of the Section of Surgery when the Association met at Leicester in 1905.

Dr. CHARLES VINCENT DINGLE, who died on June 7, was M.O.H. for the county borough of Middlesbrough from 1898 until 1936, during the period when the foundations of the health services of the town were being well and truly laid. His introduction to Middlesbrough was at the time of the virulent smallpox epidemic which, raging there during 1897 and 1898, attacked 1,405 of the townspeople. His previous experience on the staff of the public health department of the City of Newcastle stood him in good stead during this difficult period. He became one of the foremost authorities on smallpox in the North of England and was the author of many special reports on vaccination and smallpox. He was appointed medical officer to the Tees Port Health Authority in 1904, and became the town's first school medical officer in 1908. During his term of office Dr. Dingle tackled the high infantile mortality with the causative bad housing in Middlesbrough with great vigour and determination, and was instrumental in carrying through, against much opposition, some extensive slum-clearance schemes. He saw a large part of the town converted from privy middens to the water-carriage system of sewage disposal, and also established the maternity and child welfare services on a most satisfactory basis. On his retirement in 1936 he had seen the public health department grow, through his guidance and inspiration, into a very important and vital factor in the life of the town. He was well loved by his colleagues and staff for his kindly and courteous manner, and nowhere was his cheerful personality more in evidence than in the various social functions in the hospitals and other institutions under the control of his department.—T. L. H.

Dr. THOMAS WILLIAM HIGGINS BURNE, of Chesham Bois, Buckinghamshire, late senior surgeon, Federated Malay States, died suddenly on June 2, aged 65. He graduated B.M., B.S.Lond. in 1908 from St. Bartholomew's Hospital and went to Malaya, becoming medical officer in charge of the General Hospital, Johore, and chief surgeon, Selangor. This title was altered to chief surgeon, F.M.S., in 1927 and he was made senior surgeon in the following year. He married Dr. Catherine Violet Turner, and after returning to England became honorary medical officer to Chesham Cottage Hospital and medical officer to the Amersham Institution. He had been a member of the B.M.A. since 1910.

Dr. THOMAS FERNANDEZ died suddenly at his home in Sutton Court Road, Chiswick, on June 5. After spending his early youth in India and Ceylon, Dr. Fernandez studied medicine at St. Catharine's College, Cambridge, and graduated M.A. in 1919. He continued his medical studies at Guy's Hospital, and took the diplomas M.R.C.S., L.R.C.P. in 1920. He won the University cue for billiards while at Cambridge, and was an excellent golfer. He leaves a widow, Christine, daughter of the Rev. James Mayo, D.D., of Warkworth Terrace, Cambridge, and a son, John Anthony, a young man of great promise, who, after a period at Trinity College, Cambridge, is engaged on specialized research for the war.—C. B. C.

Dr. ROGER BULLOCK, of Stratford-on-Avon, late surgeon lieutenant-colonel, Warwickshire Yeomanry, died on June 9. He was born at Warwick on Nov. 7, 1862, son of Thomas William Bullock, M.R.C.S., and from Rossall School went to Queen's College, Birmingham, with an entrance scholarship, in 1881. He qualified M.R.C.S. and L.S.A. in 1887, and was then house-surgeon at the Birmingham General Hospital. Returning to Warwick he became medical officer to the local dispensary and cottage hospital and also to the Heathcote and Fosse Hospitals under the Warwickshire Joint Hospitals Board. He served for a year during the last war with the Warwickshire Yeomanry in the Egyptian Expeditionary Force, was mentioned in dispatches, and received the Territorial Decoration. Later he became Deputy Commissioner for Medical Services for the Warwickshire area under the Ministry of National Service. Dr. Bullock joined the B.M.A. in 1890 and was emergency officer for Warwick and Leamington 1938–40. He was a J.P. for the county and borough.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I (Surgery, Midwifery, and Gynaecology)*: G. S. Andrew, J. Armstrong, T. W. Backhouse, G. B. Barker, J. C. Bayliss, A. M. H. Bennett, A. V. G. Bibby, M. Binnie, J. E. Blundell, B. H. Brock, A. R. Buckley, E. H. W. Burt, F. J. Conway, M. G. Cox, D. G. Davidson, W. H. Davies, J. A. R. Debenham, J. A. Dew, J. M. Drew, J. O. P. Edgecumbe, E. Ellis, R. H. Ellis, R. Finlayson, J. F. Fisher, A. E. Flatt, A. L. Furniss, D. A. G. Galton, J. M. Garratt, E. B. Gethen Smith, J. H. H. Glyn, J. H. Gough, A. W. I. Hall, D. Hamilton, R. Hodgkinson, G. F. Jolly, W. R. Juckes, C. H. Kinder, P. K. Ledger, D. W. L. Leslie, A. H. Littlewood, A. B. McGrigor, C. McIver, J. McMillan, P. N. Magee, N. B. Malleson, K. E. Marsh, E. P. G. Michell, R. H. B. Mills, G. S. Ostlere, P. P. Philip, J. E. Pitts, B. R. Pollard, C. W. A. Pullan, J. S. Rivers, J. T. Rowling, M. Shirley, C. C. D. Shute, I. B. Smith, R. S. Smylie, W. M. B. Strangeways, A. J. Underwood-Whitney, M. W. P. Ward, P. Watson, W. B. Webb, R. H. Whitworth, N. P. L. Wildy, R. H. Wilkinson, I. P. Williams, C. J. Wilson, I. D. P. Wootton.

Women: H. F. Barnes, C. B. P. Bosanquet, M. A. Brown, M. H. Moller, C. M. Plackett, F. M. Saunders, P. M. Townshend, G. B. Wrong.

UNIVERSITY OF LONDON

Prof. R. J. S. McDowall, M.D., and Mr. V. E. Negus, M.S., F.R.C.S., have been appointed Fellows of King's College.

In view of the fact that Sir John Bland-Sutton built and paid for the Institute of Pathology, of which the professor is the director, and that the school has now received a bequest of approximately £600 a year from Lady Bland-Sutton, the title of the University Chair of Pathology tenable at Middlesex Hospital Medical School has been changed to "Bland-Sutton Chair of Pathology."

Lionel Sharples Penrose, M.D., has been appointed to the Galton Chair of Eugenics tenable at University College from the date on which he is able to take up his duties. Claude Rimington, Ph.D., has been appointed to the Chair of Chemical Pathology tenable at University College Hospital Medical School from May 1.

The Western Ophthalmic Hospital, Marylebone Road, N.W., has been added to the list of institutions from which the University receives certificates in respect of part of the experience as clinical clerk or dresser for the purposes of the M.B., B.S. degrees; the South Middlesex Fever and E.M.S. Hospital, Isleworth, has been included in the list of hospitals approved for instruction in infectious diseases and fever hospital administration for the D.P.H.; and the appointment of assistant pathologist at the West London Hospital has been approved for the purposes of the M.D. examination (Branch II).

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. F. Wood Jones, F.R.S., F.R.C.S., has been appointed the first Sir William H. Collins Professor of Human and Comparative Anatomy in the College, and will take up his duties on retiring from the chair of anatomy at Manchester University at the end of the year.

The College has been gratified to receive a donation to the Restoration Fund from the Director-General, Army Medical Services, and the Regular Officers of the Royal Army Medical Corps. This brings up the total of the fund to nearly £40,000.

At an ordinary meeting of the Council of the College, held on June 14, with Sir Alfred Webb-Johnson, Bt., President, in the chair, the sixteenth Macloghlin Scholarship was awarded to Peter George James Duncan, of Epsom College.

Sir Reginald Watson-Jones was appointed representative on the Court of the University of Liverpool for three years from Jan. 1, 1945. Prof. Ernest Finch was reappointed representative on the Court of Governors of the University of Sheffield for three years from July 1. It was reported that Sir Frank Colyer had been appointed a Hunterian Trustee.

Votes of thanks were accorded Mr. C. A. Boughton Knight for providing storage space at Downton Castle, Ludlow, for 30,000 books during the war years; to the Royal Society of Medicine for storing other parts of the College library in safe premises at St. Albans; and to the Royal Cancer Hospital for giving safe custody for the College plate at Pollards Wood during the war years.

Diplomas of Fellowship were granted to the following successful candidates:

E. J. J. Borges, P. H. Lenton, W. R. Welply, Doreen Nightingale, F. X. Dunne, I. J. Thomas, D. G. Lambley, A. H. Harvie, W. Houston.

Diplomas of Membership were granted to Jack Upsdell (Cambridge and Middlesex Hospital), and David Verel (Cambridge and London Hospital).

Diplomas in Anaesthetics were granted jointly with the Royal College of Physicians of London to the following successful candidates:

E. Asquith, W. Aukin, N. W. Bartrop, R. A. Binning, Angela J. Bray, Diana M. M. Carr, D. J. Carter, J. Ciutton-Brock, T. A. Copp, Audrey M. Dealler, W. M. Dinwoodie, Elizabeth H. Flett, A. C. Forrester, Mary Foster, Margot W. Goldschmidt, K. N. A. Herdman, H. C. Hill, J. K. Irving, B. D. L. Johnson, B. Kenton, J. Lorber, W. S. MacGowan, G. D. McGrath, H. P. Price, W. K. Rae, Kathleen M. Rains, D. Reckless, Mary McC. Richmond, Rose Ritchie, A. L. G. Robertson, W. N. Rollason, B. Sullivan, A. Tom, H. Walton, B. H. Wilshere.

The Services

Col. (local Major-Gen.) S. Arnott, C.B.E., D.S.O., late R.A.M.C., has been appointed a D.D.M.S., and has been granted the acting rank of major-general.

The following medical officers have been mentioned in dispatches: Surg. Capt. G. E. D. Ellis, R.N., Surg. Lieut.-Cmdr. F. W. Baskerville, R.N., Surg. Lieut.-Cmdr. R. B. H. Faichney, R.N.V.R., Temp. Acting Surg. Lieut.-Cmdr. F. C. Edington, R.N.V.R., Temp. Surg. Lieuts. G. M. Baird and D. R. Kerr, R.N.V.R., and Surg. Lieut. J. D. B. Baird, R.C.N.V.R.

R.A.F. BIRTHDAY HONOURS

The names of the following medical officers of the R.A.F. appeared in the recently published Birthday Honours List:

O.B.E. (Military Division).—Group Capt. R. H. Stanbridge, R.A.F.; Group Capt. R. G. James, R.A.F.O.; Wing Cmdr. J. B. Wallace, R.A.F.; and Squad. Ldrs. H. O. Hughes, D. N. Matthews, and A. Russell, R.A.F.V.R.

M.B.E. (Military Division).—Fl. Lieut. J. Hood, R.A.F.V.R.

Commended for Brave Conduct.—Fl. Lieut. D. Crichton, R.A.F.V.R.

Mentioned in Dispatches.—Air Cdre. F. J. Murphy, R.A.F.; Group Capts. V. R. Smith, C. G. J. Nicolls, and L. Freeman, R.A.F.; Wing Cmdrs. C. C. Barker, K. B. Redmond, J. L. Roche, and P. A. Wilkinson, R.A.F.O.; Wing Cmdr. W. D. Peock, A.A.F.; Wing Cmdrs. D. G. Smith, L. L. Ingram, J. C. Taylor, D. J. Dawson, and F. V. Maclaine, R.A.F.; Wing Cmdrs. J. A. Lennox and O. Plowright, R.A.F.V.R.; Squad. Ldrs. M. R. Chassels, A. P. Gorrie, G. L. Gryspeerdt, L. D. A. Hussey, W. L. James, T. S. B. Kelly, J. H. McElney, R. E. McKenzie, D. H. G. MacQuaide, E. J. Blair, C. W. D. Cole, N. Vere Hodge, E. H. Jones, J. H. McCoy, I. M. MacGregor, F. L. E. Musgrove, A. J. S. Bell Tawse, and T. H. Cullen, M.B.E., R.A.F.V.R.; Squad. Ldr. J. B. Murphy, R.A.F.O.; Fl. Lieut. K. G. Eckersley, R.A.F.; Fl. Lieuts. A. H. Cutting, C. H. Dhenin, G.M., A. H. Fairlamb, and R. M. Emrys-Roberts.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action.—Capt. John Philip Irwin, R.A.M.C.

Previously reported missing at sea, now presumed killed.—Capt. Jenkin Robert Oswald Thompson, R.A.M.C.

Died in Hong Kong on Sept. 8, 1944, while a prisoner of war.—Surg. Lieut.-Cmdr. William Donald Gunn, R.N.

Died in Germany as the result of an accident.—Surg. Lieut.-Cmdr. James Leo Malone, R.N.

Died from enteric fever in India.—Lieut. Edith Mary Robson, R.A.M.C.

Wounded.—War Subs. Capts. D. H. Brown, A. F. Crick, G. C. Griffiths, E. G. Hardy, and J. Watson, and Temp. Major D. Macrae, M.C., R.A.M.C.

DEATH IN THE SERVICES

Major R. G. GAYER-ANDERSON, R.A.M.C.(ret.), who held the Egyptian rank of Lewa (major-general) with the title of Pasha, died on June 16 at the Little Hall, a beautiful early fifteenth century house at Lavenham, Suffolk, which, it was announced in 1942, he and his twin brother, Col. T. G. Gayer-Anderson, late R.A., would leave by will to the Surrey County Council as a hostel for young artists and art students. He was born on July 29, 1881, in Northern Ireland, and from Tonbridge School went to Guy's Hospital, qualifying M.R.C.S., L.R.C.P. in 1903. After house appointments at Guy's he joined the R.A.M.C. in 1904, and reached the rank of major in 1914, but was seconded to the Egyptian Army 1907–17. He received decorations for service with the Tagoi Patrol after working with the leprosy inquiry at Kordofan, and on the Sudan sleeping sickness commission and leprosy commission. Grenville Gayer-Anderson withdrew from the practice of medicine and was appointed assistant adjutant-general for recruiting, Egyptian Army, 1914–17. He served at Gallipoli and in Arabia, and became political officer to the Red Sea Patrol. He was wounded and received further decorations from the Khedive, and during the Egyptian revolution, 1919, acted as senior political officer for Upper Egypt. He retired from the Army in 1920 to become senior inspector under the Ministry of the Interior at Cairo, and two years later Oriental Secretary at the Residency. He continued to live in Cairo until 1942, interesting himself in the study of Egyptology and Eastern antiquities. He was appointed subcommissioner (Middle East) by the British Red Cross and Order of St. John War Organization in 1941, and after his return to England lived with his brother at Lavenham. He handed over to the Egyptian nation the Bayt-el-Krediea (a sixteenth century Arab house in Cairo) as a museum of Oriental arts and crafts.

Medical Notes in Parliament

On June 15, before the prorogation and dissolution of Parliament, the Royal Assent was given to the Camps Act, Town and Country Planning (Scotland) Act, Education (Scotland) Act, Family Allowance Act, Water Act, and to other Acts.

Scottish Health Services Reviewed

When closing for the Government the debate on June 12 which was devoted to national health, Cmdr. GALBRAITH, Joint Under-Secretary for Scotland, surveyed public health in that country. He said that despite the strains of war the health of the Scottish people, as shown by health indices, had in many respects been better than in the immediate pre-war years. Stillbirths since 1939 had been reduced by 9.5 per 1,000 births. The maternal death rate had fallen from 4.9 per 1,000 live births in 1938 to 3 in 1944. In 1938 maternal deaths totalled 432; in 1944, 293. The 1944 rate was half what it was 10 years ago. Infant mortality in Scotland had fallen from 69.5 per 1,000 live births in 1938 to 65 in 1944, the lowest ever recorded, but still far too high. In children between 1 and 5 years the death rate in 1944 was only half what it was immediately before the war and was six and a half times lower than at the beginning of this century.

Notifications of diphtheria dropped from 10,210 in 1938 to 6,805 in 1944. Deaths from diphtheria among children fell from 430 in 1938 to 163 in 1944. Of these 163 deaths only four occurred among children who had been immunized. The Department of Health was satisfied that the campaign for immunization had enormously reduced suffering and deaths among the child population. There was room for further effort. In Scotland tuberculosis was the greatest problem at the moment. Notifications of non-pulmonary tuberculosis remained fairly constant. Notifications of pulmonary tuberculosis increased from 4,793 in 1938 to 7,276 in 1944. Deaths rose from 3,431 in 1938 to 4,174 in 1941. Since then they had declined slightly to 3,935 in 1944. In Scotland more beds had been made available for pulmonary patients, but over 1,700 cases awaited admission to hospital. The shortage of nurses was acute in many hospitals and most serious in sanatoria. The shortage of doctors was another difficulty in that they could not expect any rapid relief, but the civilian health services were being maintained.

Mr. MAXTON asked whether steps had been taken to release young men from the Army to take up studies as medical students.

Cmdr. GALBRAITH replied that medical schools were absolutely full at present and were turning out as many doctors as possible. Demobilization of doctors from the Forces came under the ordinary demobilization scheme.

Mr. MAXTON asked whether boys who had never been in the Army were to have a higher claim on the limited accommodation in medical schools than those who were now in the Forces.

Cmdr. GALBRAITH said every facility was being given to men in the Services to train themselves for their professions. Continuing his survey he said the school health services had shared in staffing difficulties, but the physical education and nutritional state of school-children had not suffered. In 1944 in Glasgow boys of 5 years of age showed an increase, compared with 1930, of 0.93 of an inch in height and of 1.98 lb. in weight. Boys of 13 showed increases in the same period, covering some 14 years, of 1.67 inches and 6.82 lb. Mortality from cancer had increased from 5,657 in 1919 to 8,735 in 1944. It was regrettable that the war had prevented progress along the lines of the Cancer Act, 1939. It was hoped that considerable advance in facilities for earlier diagnosis and treatment would now be available. Success depended on the willingness of all concerned to co-operate. He appealed to hospital authorities, voluntary and municipal, to get together and consider how best they could use their combined resources to the maximum advantage of cancer patients. The officers of the Department of Health would give any help in their power in the preparation of schemes to that end.

Speaking of the E.M.S. hospitals Cmdr. Galbraith said the demand for accommodation for civilian casualties had been light in Scotland and it had been possible to use many beds for other purposes. The emergency hospitals had treated 34,200 patients from the waiting lists of the voluntary hospitals. Under the supplementary medical service some 10,000 workers had been referred for examination or treatment in hospital. Thousands of extra beds in well-equipped hospitals had been provided by the E.M.S. With alterations to adapt them to peace requirements, these beds would go a long way to remedy the shortage. The Department of Health would aim to integrate these new hospitals with the permanent hospital

system of the country. The method of doing so would be considered in relation to post-war development of the hospital services generally.

Replying to points raised in the general debate, Cmdr. Galbraith said the number of nurses in all the nursing services in Great Britain was a little under 200,000. The number of vacancies in those services was 32,000, not taking into account additional demands such as those made by the block system of training nurses. Nor did it take account of the development under the new health service. Questions had been asked about the upward trend of tuberculosis, which had increased between 1913 and 1943 by about 21%. This might well be due to cases being brought to notice through examination for national service. More people had been examined by radiography and other means. Fear of tuberculosis affected recruiting for tuberculosis nursing. Hospitals had been asked by the Health Departments and the Ministry of Labour to give nurses an *x*-ray examination and other tests before allowing them to start work in tuberculosis wards.

Wheat Extraction

Replying for the Ministry of Health on June 6, Mr. HAMILTON KERR told Mr. Stokes that the Standing Committee on Medicinal and Nutritional Problems was asked in writing for its advice before the wheat extraction was reduced from 85% to 80%. This matter was considered by the committee on three occasions, the number of members present varying from 14 to 16, which was the total membership of the committee.

International Conventions on Smallpox Vaccination

Mr. VIANT inquired on June 7 why it was proposed in the International Sanitary Conventions for Maritime and Aerial Navigation to fix the validity of a certificate of vaccination against smallpox at not more than three years from the date of issue. Mr. WILLINK answered that the period of three years specified in the form of international certificate of vaccination against smallpox which related, as the form showed, to a vaccination or revaccination found by the certifying doctor on inspection to have given satisfactory results, had been recommended by international bodies of high competence and experience before its inclusion in the Conventions of 1944 by the participating Governments.

Mr. Willink also stated that responsibility for the provisions of the International Sanitary Conventions of 1926, 1938, and 1944, and the International Sanitary Conventions for Aerial Navigation, 1933 and 1944, rested upon the Governments, including His Majesty's Government, which concluded them. The Conventions did not compel travellers to be vaccinated or inoculated. A traveller who had not been vaccinated or inoculated might find, however, on entering the territory of a particular country that restrictions were imposed on him under regulations made by the Government of that country. No Government could be expected to disregard the danger involved from the entry of unprotected persons without restrictions. The general object of the Conventions was to avoid unnecessary quarantine restrictions by the agreement of limits to the degree of restriction which might be imposed in given circumstances. They also included provisions designed to help the local health authorities of the countries of entry to determine, in respect of individual travellers, whether any and, if so, what restrictions were necessary. Mr. Willink saw no reason to seek modification in the Conventions.

Lord DOUGLASS told Mr. Viant on June 5 that the International Sanitary Conventions, 1944, did not require ratification and were now in force.

Pneumoconiosis and Silicosis in Wales

Mr. SEABORNE DAVIES, on June 7, asked what information the Minister of National Insurance had about the prevalence of silicosis and pneumoconiosis in the slate quarries in Caernarvonshire, and whether he would make a scheme in respect of the industry under the Workmen's Compensation Acts. Mr. PEAT answered that workmen employed underground in slate mines had been covered by a compensation scheme for silicosis since Jan. 1, 1940. There appeared to be no evidence of the occurrence of disease in the open quarry workings, but recently evidence had been obtained of the occurrence of pneumoconiosis, including silicosis, among men employed in the splitting and dressing sheds. Mr. Hore-Belisha was prepared to consider an appropriate extension of the scheme to men employed in these processes.

On the same date Mr. JAMES GRIFFITHS asked the number of applications received during the past twelve months from among slate quarrymen and miners of North Wales for certification by the Silicosis Medical Board, and what number were granted certificates. Mr. PEAT replied that the number of such applications dealt with by the Silicosis Medical Board during the twelve months ended May 30, 1945, was forty-three, and thirty-seven certificates were granted.

R.A.F. Medical Demobilization

On June 8 Mr. BOWLES requested an assurance that doctors, medical orderlies, and other medical staffs would not be retained in the R.A.F. after their release group had been reached. Mr. HAROLD MACMILLAN replied that in these categories it had only been necessary to restrict the release of nursing orderlies in the group lists so far promulgated. Release would be generally in groups determined by age and length of service, but to maintain the force for the war against Japan it would be necessary to deal separately with the different categories.

U.K. Casualties

Mr. CHURCHILL stated on June 12 that the fatal casualties suffered in Europe by the armed Forces of the United Kingdom between Aug. 1, 1943, and April 30, 1945, were: Royal Navy, 14,036; Army, 56,552; Royal Air Force, 20,336. Of the total casualties suffered by the Royal Air Force, 13,148 were air-crew officers and other ranks of Bomber Command.

Ratio of Doctors to Army Personnel

Sir JAMES GRIGG, in reply on June 12 to Mr. Seaborne Davies, said the ratio of medical officers of the R.A.M.C. to Army personnel, male and female, in S.H.A.E.F. and 21 Army Group was about 1 to 382. The responsibilities of the R.A.M.C. included, however, considerable assistance to the other Services and to Allied Forces and to displaced persons. The degree of assistance given by the R.A.M.C. in connexion with these extraneous commitments, and the volume of the latter, fluctuate so greatly, that any exact ratio of doctors to patiens of potential patients of all categories was impossible to assess. There were something of the order of 1,400 people of various categories who had to rely on each member of the R.A.M.C. for health services. In theatres of war where active operations were going on the supply of doctors was too low. It might be that there was a feeling in the R.A.M.C. that the proportion was too high and that many of them might be released to help their hard-pressed colleagues at home. It would not be certain that that feeling was not connected with a desire to get home. The average over the United Kingdom was much less than 1 doctor to 4,000 of the population.

Blood Transfusion Service

Major KIMBALL inquired on June 14 about the future of the blood transfusion services organized during the war in connexion with the Emergency Hospital Scheme.

Mr. WILLINK replied that, although demands had fallen with the end of the German war, the Emergency Blood Transfusion Service must be kept in being for some time to meet the needs of the Service and civilian patients for whom it was being used. When the emergency was over it was intended to provide a blood transfusion service on a permanent basis. Changes in organization consequent upon the transition from war to peace were now being considered in detail.

Infant Death Rates

The following infant mortality rates per 1,000 live births were recorded in the largest towns of England and Wales in 1943: London 51, Birmingham 55, Liverpool 81, Manchester 61, Sheffield 56.

Corresponding rates provisionally reported in respect of towns in Scotland, Northern Ireland, British Dominions, and America were as follows: Edinburgh 54, Glasgow 82, Belfast 111, New York 30, Chicago 29, New Orleans 39, Baltimore 44.

Training of Midwives

On June 14 Mr. WILLINK rejected a suggestion from Mr. W. J. Brown that in view of the shortage of maternity nurses he should consider reverting to the earlier practice, as an emergency measure, of regarding six months' maternity training for trained nurses and one year for untrained nurses as adequate for the time being. Mr. Willink added that one of the main objects in lengthening the course of training for midwives in 1938 was to raise the standard of midwifery, following the imposition on local supervising authorities of the duty of establishing a service of domiciliary midwives. The lengthening of the training course had been reflected in an improved midwifery service. Reduction in the period at the present time would be retrograde. He did not, therefore, feel able to invite the Central Midwives Board to consider a revision of their training rules in the way suggested.

Tuberculosis in Returned P.O.W.s.—Three-quarters of the British prisoners who have returned have been examined by mass miniature radiography and the rest will be examined when they return from leave. So far 294 have been found to be suffering from tuberculosis: this is about 3 in every 1,000; 158 have been admitted to civil sanatoria and 136 are in military and E.M.S. hospitals awaiting admission.

Wheat Germ in Flour.—Sir E. GRAHAM-LITTLE suggested on June 14 that Col. Llewellin, to save shipping space and to provide protein, protective substances, and minerals contained in the wheat germ, should during the present stringency increase in the highest measure the proportion of wheat germ required to be included in the national bread. Col. LLEWELLIN answered that the definition of national flour already provided for the inclusion of the maximum quantity of wheat germ which, having regard to the type of milling plant, could be included in national flour at the present rate of extraction in the United Kingdom. Careful examination of samples from all mills indicated that these instructions were being observed.

Vaccination Deaths.—Asked on June 14 what were the ages of the persons certified as dying in 1944 from vaccination or any other symptom connected with vaccination, Mr. WILLINK reported that the sexes and ages of the persons referred to were as follows:

Assigned Causes of Death	Ages of Males	Ages of Females
Vaccination	—	4 months
Vaccinia	6 weeks	4 ,,
Post-vaccinal encephalitis	31 years	13 ,,
Generalized vaccinia	31 ,,	3 ,,
Encephalitis myelitis	4 weeks	22 years
	3 months	5 months
		—

The death of one female child aged 21 months was assigned to septicaemia, vaccination being mentioned on the certificate.

Notes in Brief

Returns from local authorities in England and Wales show 35 deaths from diphtheria during 1944 among immunized children under 15 years of age, compared with 700 deaths from diphtheria among non-immunized children. No information is available on deaths among persons over 15 years of age.

In 1943 and 1944 a total of 7,621 other ranks were discharged from the Army suffering from tuberculosis and 42,480 suffering from psychiatric disorders. It has not yet been possible to extract from the records the figures for earlier years or for officers.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week notifications of measles fell by 1,992, those of dysentery by 32, and those of diphtheria by 13, while an increase of 176 was recorded for scarlet fever, and of 51 for whooping-cough.

There were no large local fluctuations in the trend of scarlet fever, and most areas showed a slight rise. Warwickshire and Yorks West Riding each reported 28 more cases of whooping-cough than last week, and Lancashire 37 fewer. Yorks West Riding also showed a rise of 20 for diphtheria. Measles, especially in the counties surrounding London, was on the decline; but Kent recorded a rise of 111.

Two large outbreaks of dysentery were reported during the week: Buckinghamshire, Chepping Wycombe M.B. 59 cases, and Hertfordshire, Bishop Stortford U.D. 39 cases. The other large returns were those of Lancashire 67, London 48, Glamorganshire 25, Middlesex 22, Northumberland 21, Yorks West Riding 16, Surrey 15, Kent 14, Berkshire 13, Staffordshire 12, Warwickshire 11, Lincolnshire 11.

In *Scotland* the incidence of infectious diseases fell, measles notifications being 85 fewer than last week, whooping-cough 41, dysentery 36, and scarlet fever 29. The largest returns for dysentery were from the cities of Glasgow 44, Edinburgh 31, and Aberdeen 18.

In *Eire* diphtheria notifications fell by 30, and measles by 24. In Wexford, New Ross U.D., the cases rose from 7 to 16.

In *Northern Ireland* diphtheria notifications fell by 8 cases, but measles rose by 11.

Plague in Europe

Bubonic plague has appeared in Ajaccio, Corsica; it is thought to be related to that of the outbreak of last December in North Africa.

Week Ending June 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,314, whooping-cough 1,130, diphtheria 438, measles 7,890, acute pneumonia 389, cerebrospinal fever 47, dysentery 464, paratyphoid fever 1, typhoid 5. One case of typhus was imported.

No. 23

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 9.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	(b)	(c)	(d)	(e)	1944 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	52	2	23	1	1	66	6	21	2	2
Deaths		—	—				1	2		
Diphtheria	423	23	103	78	10	470	28	163	87	25
Deaths	8	—	1	2	1	3	1	1	2	—
Dysentery	426	48	119	1	—	181	38	80	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	5	—	—		—	2	1	—	—	—
Deaths		2					—			
Erysipelas			47	4	1			42	8	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				28					17	
Deaths	45	5	5	9	3	41	5	15	7	1
Measles*	8,463	472	325	40	14	3,078	242	416	179	46
Deaths	4	—	2	1	1	4	—	2	—	—
Ophthalmia neonatorum	62	7	14	—	—	60	5	23	1	—
Deaths										
Paratyphoid fever	4	—	7(B)	—	—	3	—	2(B)	1(B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	427	23	4	12	3			5	2	8
Deaths (from influenza)	15	1	—		—	19	1	2	—	—
Pneumonia, primary			169	20		738	61	200	26	
Deaths		20		7	6		33		8	8
Polio-encephalitis, acute	3	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	6	—	1		—	4	1	2	2	—
Deaths		—					—			
Puerperal fever		1	12		1		1	15		—
Deaths										
Puerperal pyrexia‡	128	7	11	1	1	179	11	14	—	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,409	45	210	21	34	1,428	78	194	28	59
Deaths	1	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	2	—	3	3	1	1	3	8	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	2	1	—	—	—	—	—	—	1	—
Deaths				—	—				—	—
Whooping-cough*	1,033	53	88	28	20	2,473	242	156	34	17
Deaths	2	—	1	—	—	11	2	1	—	—
Deaths (0–1 year)	283	35	50	28	23	319	49	58	31	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,060	585	578	219	112	3,889	573	591	231	118
Annual death rate (per 1,000 persons living)			13·1	14·1	§			13·6	15·0	§
Live births	6,729	779	876	460	268	7,454	877	989	425	297
Annual rate per 1,000 persons living			17·5	29·7	§			20·1	—	§
Stillbirths	209	21	25			246	26	30		
Rate per 1,000 total births (including stillborn)			28					29		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

Medical News

There will shortly be published an advertisement for a Scottish Secretary of the British Medical Association to succeed Dr. Robert Craig, who has reached the age of retirement. A considerable period will be allowed for the sending in of applications so as to enable practitioners serving in the Forces, wherever they may be, to apply.

A meeting of the Middlesex County Medical Society will be held at the Royal Society of Medicine (1, Wimpole Street, W.) on Wednesday, July 4, at 5 p.m., when Sir Reginald Watson-Jones will speak on "Accident Services in the R.A.F."

The National Baby Welfare Council (29, Gordon Square, W.C.1) announces that in view of the General Election taking place during the first week in July, National Baby Week will be celebrated this year from July 15 to 21.

Dr. J. Johnstone Jervis, medical officer of health for the city of Leeds and professor of public health in Leeds University, has been elected president of the Society of Medical Officers of Health for the session 1945–6.

Twelve countries have been invited by the Persian Government to take part in an International Medical Congress, to be held in Teheran during the first nine days of July. They are Great Britain, Russia, the United States, France, Egypt, Syria, the Lebanon, Palestine, India, Turkey, Afghanistan, and China.

The fourth group of distinguished Belgians to visit this country as representatives of the Belgian Fondation Universitaire and guests of the British Council have arrived in London. They are: Profs. M. Florkin, Faculty of Science and Medicine, Liège; F. Albert, Faculty of Medicine, University of Liège; F. Bremer, Faculty of Medicine, University of Brussels; A. Castille, Faculty of Medicine, Louvain; J. C. Firket, Faculty of Medicine, Liège; and H. R. Fredericq, Faculty of Medicine, Liège; M. Jean Willems, hon. secretary, University of Brussels; and Prof. L. M. Gyselynck, Faculty of Law, Brussels. They will meet leading British authorities in their particular spheres in universities and research institutions in London, Cambridge, Oxford, Liverpool, Edinburgh, Glasgow, and Belfast.

The British Council has arranged a medical course for members of the U.S. and Dominion Forces on leave, to be held at the University Overseas Club, Birmingham, from July 9 to 14. The programme includes addresses by Dr. H. P. Newsholme, M.O.H., Birmingham, on "Public Health Administration"; by Prof. H. P. Gilding, on "Plasma Proteins"; by Dr. H. Guy Dain on "The State and Medicine"; by Lieut.-Col. A. Torrie, on "The Health of the Mind"; by Prof. A. C. Frazer on "Recent Advances in Fat Absorption"; by Dr. J. F. Brailsford on "Radiology of the Chest"; by Prof. K. D. Wilkinson on "Infectious Hepatitis"; and by Dr. Brian Taylor on "Intrathoracic New Growths." There will also be visits to the Queen Elizabeth Hospital, to the Medical School of the University, to Barnsley Hall Emergency Hospital at Bromsgrove, and to the Dudley Road Hospital, Birmingham.

The Howard League for Penal Reform hopes electors will bring to the notice of candidates for election to Parliament its recent resolution calling for a comprehensive measure of penal reform which is urgently needed in view of the abandonment of the Criminal Justice Bill of 1938. The resolution also calls for unity of all parties in demanding a Bill which will provide, among other things, for: observation centres, improved remand homes, and other facilities for full medical and psychological examination of offenders before sentence; hostels for adolescents on probation and otherwise; control of residential schools by Ministry of Education, not the Home Office; possession of diploma in psychological medicine by every prison medical officer; non-penal colonies for habitual criminals; and abolition of imprisonment for all persons under 21, of corporal punishment, and of the death penalty.

The Minister of Health sent on June 13 a message to every voluntary hospital which has taken part in the Emergency Hospital Scheme expressing warm thanks to the governing body, the medical, nursing, radiographic, and other technical staff, and the administrative, clerical, domestic, and other staffs, as well as all the voluntary workers who have co-operated with them, for their splendid work during the last six years. "Often under air attack, and always under the handicap of staff shortages and other wartime difficulties, the voluntary hospitals have given the Government magnificent assistance in the treatment and care of Service casualties and sick, air-raid casualties, and all the other classes of patients for whom I am responsible under the Emergency Hospital Scheme. This has been patriotic service of the highest order. We still have to finish the war with Japan, and it will be necessary to ask many of the voluntary hospitals to keep on giving their help, although perhaps on a reduced scale. I know that for as long as the need exists the Government can rely upon your co-operation."

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Articulate Westcent, London.*

MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

D.D.T. for Bees, Wasps, and Hornets

Q.—*Has any work been published on the effect of D.D.T. on bees, wasps, and hornets?*

A.—There are several short notes on the toxicity of D.D.T. to bees in the *Journal of Economic Entomology* of 1944 (**37**, 159, 537, and 849). The chemical is quite toxic to bees, both as a stomach poison and by contact. The last of the accounts mentioned describes a way of exterminating colonies of bees in unwanted places by blowing in D.D.T. powder with a dust gun. (About 5 oz. of 20% dust was used.) This method might be employed for nests of wasps and hornets, though there appears to be no actual published information on the use of D.D.T. for these insects.

Types of Syringe Needle

Q.—*How many different types of syringe needle are in common use—e.g., Record, Luer, etc.? How does the gauging of these needles differ? The gauge is apparently expressed in terms of the external diameter of the needle; what is the relation between the external diameter and the lumen of the needle, and is the ratio the same with all sizes of needle? How does the method of manufacture ensure a smooth inner surface to the needle to prevent accumulation of debris?*

A.—There are three standard sizes of needle mounts which are in common use—namely, the Record, Luer, and S.I.M.A. With regard to needles some houses have their own series. The standard sizes are as under:

Hypo Range	Diam. B.W.G.	Diam. mm.	Length mm.
20	26	0.45	15.5
19	26	0.45	17.5
18	26	0.45	19
17	25	0.50	23.5
16	24	0.55	25
15	23	0.60	25
14	23	0.60	30
12	23	0.65	30
2	22	0.70	33
1	21	0.80	38

The above is the standard series of hypodermic needle sizes. In addition, exploring and aspirating needles are made from 1½ in. to 4 in. long in sizes from 14 to 20 standard wire gauge. The lumen of the needles varies in accordance with the external diameter, as the larger needles have a thicker wall. The method of manufacture ensures the internal bore being smooth, as needles are made by being drawn down from a short length of large-diameter tubing to fine sizes for hypodermic needles. When ordering, either the standard or Birmingham wire gauge should be used; this varies slightly, but the difference on fine sizes is infinitesimal.

The question of sizes of hypodermic needles and mounts has been considered by the Surgical Instrument Manufacturers Association and a standard series has been arranged. This standard has been approved by the British Standards Institution, and will be manufactured as soon as circumstances permit. Although the various series will continue to be made, it is hoped that eventually all mounts and needles will be of a standard size.

One Under-developed Breast

Q.—*A nullipara aged 23 has a right breast only half the size of the left, which is about normal. It is surrounded by a retracted nipple on which manipulation has had no effect, and small doses of stilboestrol have not altered the contour. I would appreciate advice.*

A.—The cause of this condition is not a hormone deficiency or imbalance (as is evidenced by the normal development of the left breast) but an inherent defect in the right breast, the tissues of which are incapable of response to the normal hormone stimulus. It is therefore not surprising that there has not been any response to

stilboestrol, nor is there likely to be even if the dose is increased. Daily applications of an oestrogen ointment to the hypoplastic breast might be tried, but if they have any effect it is more likely to be due to the massage than to the ointment. Indeed physiotherapy—contrast bathing and regular massage—probably offers the only hope of improving matters. But it is a forlorn hope, and it is doubtful whether any treatment will produce even temporary, let alone permanent, enlargement of the affected breast.

Seborrhoea Capitis

Q.—*I am treating without success a persistent case of seborrhoea capitis in a man. The scalp is slightly irritated and red, possibly owing to the use of medicaments. Advice would be appreciated.*

A.—Seborrhoeic dermatitis has been prevalent and common during this war as in the last. In its treatment, especially when the scalp, face, or neck is affected, it is important to take into consideration the liability to eczematize. When in doubt it is a good rule to apply oily calamine with or without the addition of ichthammol, 1 or 2%. A messy application of this kind calls for a weekly shampoo, which should be followed by a fresh application of the oily lotion. When the inflammation has subsided sulphur in very weak concentration (less than 1%) in zinc cream can be tried. Inflamed seborrhoea capitis can be easily overtreated.

Sonne Dysentery Carriers

Q.—*A family of three children, aged 3, 8, and 14 years, has positive rectal swabs at the same time. The diarrhoea has ceased, stools appear normal, and they are quite well, but each has a positive swab between one or two negative ones. Is there any treatment that will clear up the infection and is there any reason why the two elder ones should be kept away from their day school, and for how long? The parents are worried at their absence from school.*

A.—Although it is not so stated, it may be presumed that these children were suffering from Sonne dysentery and are now convalescent carriers of the Sonne bacillus. The convalescent Sonne carrier is particularly difficult to cure by specific measures, but most cases clear up spontaneously in 3 to 4 weeks' time. For the more persistent carrier the safest and perhaps the most effective sulphonamide to use is succinylsulphathiazole, which in children aged 3 to 14 years should be given in 1½-gramme doses four times a day for 5 to 7 days. If it is not available, sulphapyridine in rather smaller dosage may be tried. Whether these convalescent carriers are likely to be a source of danger to their school-fellows is a difficult question to answer. If they are taught the simple rules of good hygiene —to wash the hands after using the w.c. and before handling food —the risk of their spreading infection is minimal. As they are day-boys, there seems little justification for keeping them from school provided they are not allowed to act as food-servers during the midday meal. Sonne dysentery is often so mild that many cases are not diagnosed, and it is the *missed* case or carrier who is most likely to spread the infection.

Tenacious Plugs in Lungs in Asthma

Q.—*Is there any drug for removing the tenacious mucous plugs which form in the lungs in asthma? What quantity should be used and how often, and how long should each course of treatment last?*

A.—Tenacious mucous plugs which form in asthma are exceedingly troublesome and distressing. Probably the best method of dealing with them is to put the patient to bed and to give him an injection of adrenaline which will open the bronchioles widely. When the airway is thus made clear the natural ciliary action will remove the mucus by driving it upwards. So far as other drugs are concerned there is a prescription intended for this purpose in the *National War Formulary*, containing 3 gr. potassium iodide, 2 min. ext. stramon. liq., in 1/2 oz. chloroform water. This can be taken three times a day, or more often if necessary. The stramonium contains hyoscyamine and hyoscine, which dilate the bronchioles, while the potassium iodide loosens the tight plugs of mucus by causing a more watery secretion.

Herpes Labialis

Q.—*Have there been any recent advances in the treatment or prophylaxis of herpes labialis, or any new factors found in its aetiology? A woman patient, who can remember recurrences of a "cold on the lip" since her early childhood, has had 9 recurrences during the past year at intervals of a few weeks; and the more recent eruptions have left pigmented scars. No precipitating factor has been isolated. The patient is otherwise in good health.*

A.—Herpes labialis remains an intractable condition. Attempts have been made to treat it with vaccines of the causative virus or a related virus, but one would expect little success from such measures on *a priori* grounds. *X*-irradiation of the affected areas has also been recommended, but there does not appear to be any record of controlled tests of either vaccine or radiation therapy. At the moment the only treatment one can recommend is measures to improve the physical and mental state of health.

Post-menopausal Pregnancies

Q.—*In some books of birth control it states that it is advisable to use anticonception methods for up to two years after menstruation has ceased. What is the explanation of this?*

A.—Some considerable time must inevitably elapse before a woman can be reasonably certain that she has had her last menstrual period, but, leaving aside such considerations, the explanation really depends on the fact that ovulation can occur without menstruation, and vice versa. The menopause does not necessarily imply cessation of ovarian function, and very often the climacteric occurs several years after the menopause. There is abundant evidence—such as the finding of signs of follicular activity and corpus luteum formation at operation—to show that ovulation sometimes occurs, although not necessarily regularly, after the menopause. Moreover, cases of pregnancy occurring several years after the last menses are on record, and reference was made to some of these in a reply published in the *Journal* of Dec. 11, 1943 (p. 771). However, the chances of a post-menopausal pregnancy are not high, and after 2 years' amenorrhoea they are extremely remote.

Diabetic Gangrene

Q.—*What is the modern treatment of diabetic gangrene of an extremity? I would particularly value advice regarding (a) application of heat or cold to the limb, and (b) amputation. Most textbooks advise that the limb should be wrapped in cotton-wool and kept warm; many teachers advise that the limb be kept ice-cold and the body warm. Which is physiologically correct? Again, regarding amputation, many advise the avoidance of amputation almost at all costs; others advise early amputation if the condition of the arteries permits.*

A.—Diabetic gangrene is usually a moist, septic spreading gangrene tending to cause death in coma. A line of demarcation rarely forms, so that in the established condition the only hope of relief lies in amputation. This should be done at a level at which the blood supply is adequate for healing and where the tissues are not grossly infected, after a preliminary period of treatment directed to carbohydrate, insulin, and fluid requirements. Conservative treatment should be reserved for those in whom, by reason of poor general condition, the risks of an operation are thought to be prohibitive. Many of this class, however, can be made relatively safe for amputation by first regulating their metabolism and occasionally by incision and drainage of superficial abscesses. A good deal of the operative mortality in the past has been due to sepsis in one way or another, and it is likely that in the future the prospects will be improved by the use of penicillin, so that more patients can be offered the benefits of surgery. Avoidance of amputation "at all costs" is an extreme view which will cost many lives.

In deciding on the level of amputation the primary consideration is the ability of the tissues at a given level to heal, having regard to the local circulation; the suitability of the stump for an artificial limb is of comparatively small importance. Arteriosclerosis is practically always present and is a hazard which must be faced; it has a decisive bearing on the amputation level. Where gangrene is limited to a toe or toes, local amputation is sufficient provided there is a good circulation in the foot. Where gangrene or deep infection has extended above the toes, a thigh amputation is best. An upper-leg amputation is permissible if the popliteal artery pulsates and if the leg is uninfected, but generally this is an unsafe amputation for arteriosclerotic patients. Any amputation below the knee may later need re-amputation through the thigh.

Local application of heat is the worst kind of treatment. It increases tissue metabolism, creating an increased demand for oxygen which cannot be met by the depleted blood supply; and it also encourages bacterial growth. The effect is spread of gangrene and of infection. Application of cold has the opposite effect and is obviously sound therapy; it also tends to diminish pain. It is sufficient to keep the limb exposed at room temperature. Actual refrigeration has been used as a preliminary to amputation. By effecting a "physiological amputation" it produces a great improvement in the general condition, so that this form of treatment probably has a considerable future. The rest of the body should be kept warm but not overheated. Reflex vasodilatation of the affected limb is a rational procedure, but its value is limited by the poor capacity of sclerosed vessels to dilate. Following amputation, however, it might make just the difference between success and failure.

Dystrophia Adiposo-genitalis

Q.—*What is the modern treatment for dystrophia adiposo-genitalis?*

A.—In this condition, which is also termed Froehlich's syndrome, adiposity and failure of sex development are the outstanding features; occasional dwarfism is a complication. Sex development can be produced by injections of gonadotrophic hormone (500 units per c.cm.) 1 c.cm. twice weekly for six weeks, the course repeated after an interval of some weeks. The treatment of the adiposity is that of adiposity in general—namely, diet and thyroid—and the

response is only partial. The treatment of the dwarfism is by thyroid and growth hormone.

Relief of Tinnitus

Q.—*A woman aged 50 has suffered from "noises in the head" since a post-scarlatinal infection of the ear in childhood. These have become gradually more severe and distressing. Is there any means of relieving the symptoms?*

A.—A course of short-wave diathermy to the affected ear will occasionally relieve the tinnitus, and is worth a trial. If the tinnitus is high-pitched, the administration of nicotinic acid may help. Failing relief, the usual sedatives, acid. hydrobrom. dil. or phenobarbitone, should be given.

Fly Repellents

Q.—*What is the best fly repellent (with special reference to the article in the* JOURNAL *of May 19 entitled "Dimethyl Phthalate as an Insect Repellent," in which indalone is mentioned)? What is indalone? What is its smell and consistency, what is its cost, and where can it be obtained? Is it the sort of thing which an old lady would be grateful to have sprayed on her pillow, or would she prefer to let the flies go on crawling over her nose?*

A.—It should be realized that most effective repellents act by contact rather than by the smell of the vapour. Their principal use, therefore, is against biting insects, either by treating the skin or else clothing over which the insect may travel on its way to bite. There does not seem to be much data on repellents for houseflies, though some American experiments in 1939 showed that indalone was much more effective than citronella in preventing flies from settling on a molasses bait. Indalone, which is αα-dimethyl α-carbo-butoxy dihydro-γ-pyrone, is an amber-coloured liquid with little or no smell. Like dimethyl phthalate it can be applied to the skin without danger. It is manufactured in the U.S.A. and cannot be freely purchased in this country at present.

Probable Case of Neurosyphilis

Q.—*Three or four years ago a woman consulted me for pains on the left side of her face. The pupil of her left eye was dilated and reacted to light but not accommodation. A Wassermann test was positive. Since then I have given her regular courses of injections of bismuth and arsenic preparations. Three subsequent Wassermann tests have still proved positive. Shall I continue with the treatment already given or can you recommend any other better remedies to be used by intramuscular injection, as this is much easier for a general practitioner than intravenous injection?*

A.—This question would be easier to answer if more particulars were available—e.g., previous history, family history, age of the patient, whether married or single, any miscarriages, state of other reflexes, etc.. A dilated left pupil which reacts to light but not to accommodation is the exact opposite of the Argyll-Robertson pupil, but in view of the fact that the Wassermann reaction has been repeatedly positive it seems probable that the patient is suffering from neurosyphilis in some form. For this reason it is essential that an examination be made of the cerebrospinal fluid together with a complete clinical examination of the nervous and vascular systems; the former is beyond the scope of the average general practitioner and the patient should be referred to an expert syphilologist. Treatment will depend on the results of examination and particularly on the state of the cerebrospinal fluid. If the fluid is normal or shows only mild changes, potassium iodide by mouth and bismuth intramuscularly will probably prevent extension of any morbid process; if, on the other hand, the fluid shows marked changes, including a strongly positive Wassermann reaction and a paretic type of gold curve, more drastic methods are indicated, such as artificial fever (malaria) therapy followed by repeated courses of tryparsamide intravenously and bismuth intramuscularly. In this connexion it cannot be too strongly stressed that it is the patient who should be treated, not the positive serum reaction; the type and amount of treatment will depend mainly on the clinical signs and the effect of treatment on the reactions of the cerebrospinal fluid.

INCOME TAX

Child Allowance

R.M.'s child was born on April 3, 1944. Which is the first year for which he is entitled to the £50 allowance?

*** The full £50 is due for the year ending April 5, 1944.

Hospital Appointment

J. D. inquires as to the deduction of certain expenses.

*** (1) Cost of moving to take up appointment—not allowable. Such expenses are incurred anterior to, and not in the carrying out of, the duties of the appointment. (2) Expenses to be incurred in acquiring the D.P.M.—not allowable. Such expenses are of a capital nature and therefore not allowable against income.

LETTERS, NOTES, ETC.

National First-aid Service

Dr. BOWMAN EDGAR (Kirkconnel, Dumfriesshire) writes: First aid has, along with medicine and surgery, made striking advances during the last five years. The experience gained in war and under attack from the air has proved how useful can be a system of well-organized rescue work. It is to be hoped that first aid will not be allowed in peacetime to drop back for lack of broad outlook and organizing keenness to the rut it has occupied for too many years. Is it not to be deplored that no fewer than three "Societies" (St. John's in England, St. Andrew's in Scotland, and the B.R.C.S.) appear necessary to carry on first aid in this small island? These societies are, without a doubt, doing excellent work each in its own sphere, but not one of them can speak for the British first-aid workers as a whole; not one of them is capable *per se* of organizing, or is entitled to co-ordinate, the work on a national basis, and so far no hint of a move in that direction has been heard from any of the three. The following true case is worth consideration. Some years ago a Government order was issued to certain works instructing that, for every so-many workmen employed, there must be one man holding a first-aid certificate. By going over the works with a small-tooth comb and accepting certificates dated up to *25 years* previously, the management was able to obtain the requisite "first-aid men" (alleged!). The letter of the law was thus obeyed. The spirit of the law and the interests of any injured man were apparently of no importance whatever. The works sent in their full quota of names; they did not state that 75% were quite inefficient. And there was no F.A.H.Q. with authority to intervene in the interests of the injured. The law had been obeyed; what happened to any casualties just didn't matter. This blind acceptance of certificates as evidence of training and ability to perform work efficiently brings us to one big question which must be squarely faced, and answered. Is first aid to achieve promotion in these coming post-war years to its rightful high place on the list of national services? Under all manner of enemy attack the British first-aider has proved, over and over again, his personal courage and the immense value of the training he has received. Does he not deserve to be raised to membership of a properly organized national service, with recognition and privileges as such? This reward to the "first-aiders of the 'blitzes'" could be achieved by establishing a representative "British Council of First Aid" with the following mandate: (1) The "continuation, intensification, and modernization" of first-aid training in Great Britain. (2) The standardization of this training over the whole country and the raising of examination standards. (3) Revision of the system of certification, the award of badges in place of certificates, and the establishment of these badges under the "unauthorized wearing" law. (4) Co-operation with Government Departments and the "High Command" in any questions touching first aid (as in the case mentioned above). (5) Recruiting of the best type of volunteer. (6) Consideration of conditions of service of full-time first-aid personnel. (7) The establishment, at the earliest possible date, of the "Royal First-aid Service of Great Britain." (8) The publication of an official up-to-date "Manual of British First Aid" with space at the end for quarterly "bulletins" of up-to-the-minute information. This is merely a preliminary survey of some of the steps required to set the service on a national basis, which is its just due.

Calciferol and Toxisterol

Mr. J. GREENBAUM, B.Sc., Ph.D., writes: In the *Journal* of May 19 (p. 721) a correspondent asked a question concerning the existence and toxicity of toxisterol. The answer given was in error when outlining the sequence of ergosterol irradiation products, and particularly in stating that calciferol is the first irradiation product of ergosterol, which is then further irradiated to lumisterol, tachysterol, and toxisterol. The correct sequence of substances on irradiation is as follows: ergosterol, lumisterol, protachysterol, tachysterol, calciferol, toxisterol, and suprasterols. As will be seen from this, calciferol is an end-product of a series of substances, and is transformed into toxisterol, so far as is known, without intermediate compound formation, on further irradiation.

Corrections

Air-Cdre. T. C. ST. C. MORTON wishes to correct a typing error in his article on "Diodoquin for Chronic Amoebic Dysentery" published on June 16. The fourth line under "Conclusions" on page 832 should read "approximately one-fourth of the cases have relapsed," not one-third.

By a misprint in the obituary notice of Mr. Bishop Harman published last week the late Dr. Wallace Henry's name was printed as Henry Wallace.

T. ANDREW'S HOSPITAL, NORTHAMPTON
For Nervous and Mental Disorders

President: THE MOST HON. THE MARQUESS OF EXETER, K.G., C.M.G., A.D.C. *Medical Supt.:* THOMAS TENNENT, M.D., F.R.C.P., D.P.H., D.P.M. This Registered Hospital is situated in 130 acres of park and pleasure grounds. Voluntary patients who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble, temporary patients and certified patients of both sexes are received for treatment. Careful clinical, biochemical, bacteriological and pathological examinations. Private rooms with special nurses, male or female, in Hospital or in one of the numerous villas in grounds of the various branches can be provided. VANTAGE HOUSE—This is a Reception Hospital detached grounds with a separate entrance to which patients can be admitted. It is equipped with all the apparatus for the complete investigation and treatment of Mental and Nervous Disorders by the most modern methods; insulin treatment is available for suitable cases. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an *X*-ray room, an Ultra-Violet Apparatus, and a Department for Diathermy and High-frequency Treatment. It also contains Laboratories for biochemical, bacteriological, and pathological research. Psychotherapeutic treatment is employed when indicated. OULTON PARK — Two miles from the main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupational therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit-growing.
RYN-Y-NEUADD HALL—The seaside house of St. Andrew's Hospital is beautifully situated in a park of 330 acres at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate, a mile of sea-coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.
At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own garden, and facilities are provided for handicrafts such as carpentry, etc.
For terms and further particulars apply to the MEDICAL SUPERINTENDENT (Telephone Nos. 2356 and 2357 Northampton), who can be seen in London by appointment.

COURT HALL, KENTON, near EXETER
FOR THE TREATMENT OF EIGHT LADIES, VOLUNTARY, TEMPORARY and CERTIFIED PATIENTS
CLIFFDEN, TEIGNMOUTH
FOR EARLY AND CONVALESCENT CASES.
Recreational Therapies are held daily by skilled leaders. The house stands high with spacious balconies and extensive views of the South Devon. coast. Beautiful garden. Own Dairy in 25 acres Private road to beach. There is also a charming house, EBWORTHY, MANATON, DARTMOOR, situated in 20 acres, 1,100 ft. up for bracing moorland air. Resident Physicians, Bertha A. Mules, M.D., B.S.; Anne S. Mules, M.R.C.S., L.R.C.P. Telephones: Starcross 259 and Teignmouth 289.

WYE HOUSE, BUXTON
A private Hospital for the treatment and care of Nervous and Mental Disorders in both sexes. Voluntary, Temporary and Certified patients received. Apply to Dr. Iain Macphail. Tel.: Buxton 130.

THE MAGHULL HOMES FOR EPILEPTICS (INC.), MAGHULL, near LIVERPOOL
Open Air Occupation and Recreation for Patients. Farming, Gardening, Football, Cricket, Tennis, Bowls. School recognized by Ministry of Education. Fees:—1st Class (men only) from £3 per week. 2nd Class (men and women) 37s. 6d. per week. 3rd Class (men and women) Supported by:—Public Assistance Committees 27/6 p.w. Education Committees 33/6 p.w. Private 21/- p.w. For further particulars apply C. Edgar Grisewood, A.C.A., 30, Exchange Street East, Liverpool, 2.

THE MUNDESLEY SANATORIUM at VALE ROYAL ABBEY
This modernized mansion is situated in its own beautiful grounds in the heart of Cheshire. Terms from 6½ to 10½ guineas weekly. Tel.: Winsford 336. Station: Hartford. Postal Address: Vale Royal Abbey, Hartford, Cheshire. Medical and Surgical Staff: S. VERE PEARSON, M.D.Cantab, M.R.C.P.Lond., E. C. WYNNE-EDWARDS, M.B.Cantab, F.R.C.S.Ed., GEORGE DAY, M.D.Cantab.

CAMBERWELL HOUSE
PECKHAM ROAD, LONDON, S.E.5
Telephone: RODNEY 4242 (2 lines).
For the Treatment of Mental Disorders
Full particulars may be obtained from the Secretary.
The CONVALESCENT BRANCH is HOVE VILLA, BRIGHTON, and is 200 ft. above sea-level.

CRICHTON ROYAL, DUMFRIES
For Nervous and Mental Disorders
Cases of alcoholism and drug addiction are admitted. Special department for Insulin Therapy. As the Hospital is well endowed, terms are exceptionally moderate. Medical certificates given anywhere in the British Isles are valid for admission of patients. Physician-Supt.: F. K. MCCOWAN, J.P., M.D., F.R.C.P., D.P.M., Barrister-at-Law. Telephone: Dumfries 1119.

PECKHAM HOUSE
112, PECKHAM ROAD, LONDON, S.E.15
Telegrams: "ALLEVIATED, LONDON."
Telephone: RODNEY 2641–2642.
A Private Mental Hospital for Ladies and Gentlemen suffering from Nervous and Mental Illness, where the amenities of a comfortable home are combined with full investigation and every well-established modern treatment. TERMS FROM 3½ GUINEAS WEEKLY. Illustrated Prospectus may be obtained from the PHYSICIAN-SUPERINTENDENT.

DUCHY HOUSE CLINIC, HARROGATE
Private Hospital for investigating obscure illnesses, well equipped for the investigation and treatment of rheumatic affections, diabetes, and diseases of the blood and alimentary tract. The services of a full consulting staff available; fees inclusive for investigation. For brochure apply Secretary.
Tel.: Harrogate 3872.

HAYDOCK LODGE
NEWTON-LE-WILLOWS, LANCASHIRE
Tel.: Wootton, Ashton-in-Makerfield.
'Phone: Ashton-in-Makerfield 7311.
For the reception and treatment of PRIVATE PATIENTS of both sexes of the UPPER and MIDDLE CLASSES suffering from mental and nervous disorders, alcoholism, and drug addiction, either voluntarily, temporarily, or under Certificate. Patients are classified in separate buildings according to their mental condition.
Situated in park and grounds of 400 acres. Self-supported by its own farm and gardens, in which patients are encouraged to occupy themselves. Every facility for indoor and outdoor recreation. For terms, prospectus, etc., apply Medical Superintendent.

WONFORD HOUSE, EXETER
A Registered Hospital for the Treatment of MENTAL DISORDERS OF THE EDUCATED CLASSES. Cases under certificate, voluntary and temporary patients received for treatment. Convalescent Home: Newlands, Dawlish, where patients can be sent by arrangement for long or short periods. It is provided with all the comforts of a well-appointed home. For terms, apply to the Medical Superintendent, Wonford House, Exeter.

THE OLD MANOR, SALISBURY
Telephone: 3216 and 3217.
A Private Hospital for the Care and Treatment of those of both sexes suffering from MENTAL DISORDERS. Extensive grounds. Detached villas. Chapel. Garden produce from own gardens. Terms very moderate.
Convalescent Home at Bournemouth
standing in 12 acres of ornamental grounds with separate villas, tennis courts, etc. Patients or Boarders may visit the Home by arrangement. Illustrated Brochure on application to the Medical Superintendent. The Old Manor, Salisbury.

BEECHMONT HOUSE
HAYWARD'S HEATH, SUSSEX
For LADIES suffering from NERVOUS and MENTAL ILLNESS. Controlled by Brighton Mental Hospital Authorities. In pleasant woodland, entirely secluded, and with beautiful views of the Sussex Weald and Downs. Grounds and Gardens of 12 acres. Voluntary, Temporary and Certified patients accepted. Fees from 3 to 10 guineas per week. Apply Medical Supt. Tel: Haywards Heath 897.

RUTHIN CASTLE, NORTH WALES
A Private Clinic, the first in Great Britain, for investigation and treatment of all forms of disease, except mental and infectious. Nursing, dietetic, massage, x-ray, and laboratory departments. Central heating and a lift to all floors.
Inclusive Charges. Apply Secretary. Tel.: Ruthin 66

ECCLESFIELD, STAPLEHURST, KENT
HOME for the care and cure of ALCOHOLIC cases (ladies). Fine mansion. 100 acres. Successful treatment. Catholic chapel on estate. For terms, apply to Sister Superior, Staplehurst 26111.

THE GRANGE, near ROTHERHAM
For ladies suffering from Nervous and Mental Disorders. Certified, voluntary and temporary patients received. Country house, beautiful grounds. Five miles from Sheffield. Res. Phys.: GILBERT E. MOULD, L.R.C.P., M.R.C.S. Ecclesfield 38330.

NYNEHEAD COURT CLINIC, TAUNTON
HIGH-CLASS NURSING HOME for the investigation and treatment of NERVOUS DISORDERS. Fully specialized staff. For brochure, etc., apply to the Secretary, or to the Medical Director, Dr T. Waterhouse. Tel. 281 Wellington (Somerset).

CALDECOTE HALL, NUNEATON
For treatment of ALCOHOLISM and NEUROSES. Beautifully situated country mansion in Warwickshire. Extensive grounds for therapeutic occupations (See *Medical Directory*, p 2481). Illustrated brochure from Resident Med. Supt., A. E. Carver, M.D., D.P.M. Phone Nuneaton 2841.

HEIGHAM HALL, NORWICH
PRIVATE MENTAL HOME for Nervous and Mental Illness. All types of treatment available. Fees from 4 gns. per week upwards, according to requirements. Vacancies occasionally exist at reduced fees on the recommendation of the patient's own physician. Apply to Dr. J. A. SMALL.
Telephone: Norwich 20080

STRETTON HOUSE
CHURCH STRETTON, SHROPSHIRE
Telephone: CHURCH STRETTON 10.
A PRIVATE HOME for Gentlemen suffering from any form of mental disorder. Voluntary temporary and certified patients received. Terms on application to the Resident Medical Superintendent.

CHISWICK HOUSE, PINNER, MIDDLESEX
Telephone: PINNER 234.
A private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both sexes. A modern country house, 12 miles from Marble Arch, in attractive and secluded grounds. Fees from 10 guineas per week inclusive. Cases under Certificate. Voluntary and Temporary patients received for treatment. DOUGLAS MACAULAY, M.D., D.P.M.

BOWDEN HOUSE, HARROW
Acting Medical Superintendent, Dr. Grace Nicolle
Wartime address: **Alkerton Grange, Eastington, nr. Stonehouse, Glos.** Tel Stonehouse 206

THE COTSWOLD SANATORIUM
On the Cotswold Hills 7 miles from Cheltenham, Gloucester and Stroud. Equipped for treatment of all forms of TUBERCULOSIS. Terms 6 to 10 guineas per week. Particulars from Secretary, Cotswold Sanatorium, Cranham, Gloucester. *'Phone* Witcombe 2181 *'Grams:* Hoffman, Birdlip

LAVERSTOCK HOUSE, nr. SALISBURY, WILTS
Private Mental Home for Certified and Uncertified Ladies and Gentlemen. Lovely house and gardens (18 acres). ESTABLISHED 200 YEARS, MODERN TREATMENTS. Illustrated brochure may be obtained from Dr. HORACE HILL, M.R.C.P., Physician-Superintendent. Tel.: Salisbury 2612.

CITY OF LONDON MENTAL HOSPITAL DARTFORD, KENT
Ladies and Gentlemen received for treatment under certificates and without certification as either VOLUNTARY or TEMPORARY PATIENTS at a weekly fee of £2 9s. and upwards.

THE COPPICE, NOTTINGHAM
Hospital for Mental Diseases
This Institution is exclusively for the reception of a limited number of Private Patients of both sexes of the Upper and Middle Classes at moderate rates of payment. It is beautifully situated in its own grounds on an eminence a short distance from Nottingham, and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. Occupational Therapy. Voluntary and Temporary Patients received. *Tel.:* 64117.
For terms, etc., apply to the Medical Superintendent.

CHEADLE ROYAL, CHEADLE, CHESHIRE
A registered Hospital for MENTAL DISEASES, and its Seaside Branch, GLAN-Y-DON, Colwyn Bay, N. Wales. The object of this Hospital is to provide the most efficient means for the treatment and care of Patients of both sexes suffering from MENTAL and NERVOUS DISEASES. The Hospital is governed by a Committee appointed by the Trustees of the Manchester Royal Infirmary. VOLUNTARY, TEMPORARY, AND CERTIFIED PATIENTS RECEIVED. For terms and further information apply to the Medical Superintendent. Telephone: Gatley 2231.

THE RETREAT, YORK
The Pioneer Hospital, opened 1796, for the humane treatment of those suffering from Nervous and Mental Disorder.
This Hospital of 200 beds, administered by a Committee of the Society of Friends, combines what is best in the investigation and treatment of nervous illness with a sympathetic and friendly atmosphere. Last year 233 patients were admitted, of whom 184 were voluntary cases. Much curative work is accomplished in our mental hospitals to-day, and the recovery rate compares very favourably with that of our general hospitals.
For information and terms of admission apply to: The Physician Superintendent, ARTHUR POOL, M.R.C.P. (Tel. York 3612.)

WHEN *Vitamin B1* IS INDICATED

'BETAXAN' is characterised by a number of advantageous features. It is available in various forms to suit individual requirements—tablets and elixir for oral administration, as well as ampoules and solution for parenteral injection. Being pure synthetic vitamin B_1 (aneurin hydrochloride) accurate dosage is always possible.

MADE IN ENGLAND

'Betaxan'
BRAND OF
ANEURIN HYDROCHLORIDE

BAYER

BAYER PRODUCTS LIMITED
AFRICA HOUSE KINGSWAY LONDON W.C.2

BURNS, IMPETIGO *and* *other* Cutaneous Infections

To meet the demand for a non-greasy, water miscible cream for first-aid dressings in burns★

CIBAZOL CREAM

has been introduced. This preparation may be used as an alternative to

CIBAZOL OINTMENT

in the treatment of impetigo and other cutaneous infections†

Registered **CIBAZOL** *Trade Mark*
CREAM and OINTMENT
(5% Sulphathiazole Ciba)
Containers of 1 oz. and 1 lb.

★Lancet, 1944, 1, 633.
†Lancet, 1942, 1, 422, and Brit. med. J., 1943, 1, 818

A copy of the Cibazol Booklet describing the chemistry, pharmacology, chemotherapeutic action and clinical application will be sent on request to members of the Medical Profession.

Ciba LIMITED
THE LABORATORIES, HORSHAM, SUSSEX
Telephone: HORSHAM 1234
Telegrams: CIBALABS, HORSHAM.

A74

The improved tar preparation

E·S·T·P

BRAND (MARTINDALE)

Ether Soluble Tar Paste

Purified, decolorised, non-staining, aromatic; maximum Tar effect

FORMULA

Ether Soluble Tar Distillate	1.5%
Zinc Oxide	14.0%
Starch	24.5%

In a special emollient base

A smooth paste easily applied. The tar component retains the essential phenolic compounds unimpaired, ensuring powerful antiseptic action. All indications for Tar Treatment are indications for "E.S.T.P" (Martindale), more especially infantile eczema; eczemata generally; impetigo complicating eczemata; prurigo; pruritus; psoriasis; pityriasis circinata; lichen planus. In 2 oz. and 16 oz. pots. Sample and literature on request.

W. MARTINDALE

Manufacturing Chemists

75, New Cavendish St., London, W.1

A Safe Hypnotic and Sedative

B.V.U. Tablets

(Bromoisovalerylurea)

Bromoisovalerylurea is a reliable sedative and mild hypnotic. It is less drastic than the barbiturates but more efficient than either bromides or valerian. Of low toxicity, it is particularly valuable in cases of insomnia caused by physical or mental strain, fatigue or worry, effecting sedation rapidly and often inducing natural slumber. Useful also in hysterical and neurasthenic conditions, in chorea and dysmenorrhœa.

Available in 5-grain Tablets, 10's and 100's

GENATOSAN LTD.
LOUGHBOROUGH, LEICESTERSHIRE
Telephone: Loughborough 2292